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CONTENTS

A Nutritional Investigation with Discussion of Statistical Interpretation *H. Louise Campbell*

Standardization Trends in Food Administration *Isola Denman*

Is Fat a Necessary Constituent of the Diet? A Review *Martha Koehne*

The Doctor Seeks the Aid of the Dietitian *Dwight L. Siscoe*

Nutrition in the Curriculum of a School of Nursing *Ethel M. Thompson*

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The Journal of

The American Dietetic Association

A NUTRITIONAL INVESTIGATION WITH DISCUSSION OF STATISTICAL INTERPRETATION*

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Early work in nutritional research was largely of a qualitative nature, no attempt being made to evaluate small differences or to compare numerically results from similar experiments either in the same or in different laboratories. The present era is one of quantitative study, which means greater necessity of finding or developing some method for evaluating results and determining whether differences observed are significant or merely accidental.

A study of the conditions and problems involved in nutritional research as conducted by means of animal experimentation, under properly controlled conditions, shows such investigations to be especially adapted to statistical treatment, as that is defined by the writers quoted below.

Dunn (1) says that statistical method represents ways and means of handling quantitative data obtained from experiments of such a type that there are a large number of disturbing influences.

Reitz and Mitchell (2) hold that many of the problems of the physiologist are as amenable to mathematical treatment as those that confront the statistician in determining the status of a community with regard to social conditions. They quote Edgeworth as saying that "the presumption that, whenever three or four independent causes coöperate, the law of error tends to be set up, is a legitimate hypothesis." And it is in physiological problems, especially, that one deals with non-controllable factors, which acting independently tend to counteract each other, according to Chaddock (3).

* Received for publication April 15, 1931, and published as Contribution No. 663 from the Department of Chemistry, Columbia University.

On the other hand, it is precisely because of these factors that a large number of observations under identical conditions must be made before conclusions can be drawn or predictions made. Scott (4) says "prediction would be justified from a single observation if material and conditions were perfectly controlled and if observations were perfectly made and recorded. This is never possible, hence one must use averages of observations made under as nearly identical conditions as possible."

There are three rather different methods of presenting the results of nutritional experiments: (*a*) giving all the data from the individual cases, (*b*) selecting a so-called "typical" case and presenting data from that in detail, and (*c*) obtaining numerical averages for all the cases and giving those.

The first is applicable and very desirable when the cases are few and the reader can easily grasp the significance of all. The second seems to the writer to give more weight to the infallibility of the judgment of the experimenter than is desirable, unless the "typical" case is selected from its resemblance to the average. If so, why not use the average? The third method is the one most favored by a majority of authorities *if* the reliability of the average is defined by one of the methods to be discussed later.

It is the object of this paper to show how the third method was applied in the study of data obtained from experiments carried out to determine the relative efficiency of two simple diets. The experiments covered the complete life history of successive generations of experimental animals (albino rats).

The diets used consisted of whole milk powder, ground whole wheat, and common table salt (sodium chloride). Earlier work had shown a diet consisting of $\frac{1}{6}$ whole milk powder, $\frac{5}{6}$ whole wheat, and salt (2 percent of the weight of the wheat), to be adequate to sustain rats in health and well being through several generations. It was desired to determine whether altering the proportions of these ingredients would show a measurable difference in the health of the rats. Hence, animals receiving another diet known as diet B (laboratory diet No. 13), consisting of $\frac{1}{3}$ whole milk powder, $\frac{2}{3}$ whole wheat, and salt (2 per cent of the weight of the wheat), were compared with those receiving the first diet mentioned, diet A (laboratory diet No. 16).

The animals used for the experiments were albino rats, all of which were born and reared in this laboratory from a common stock. The data used for statistical study were obtained from two series of comparable feeding experiments. In the first series, ten females of different

immediate ancestry and dietary history were placed upon each of the two diets; the males with which they were mated were not closely related, though all were from a common stock. All the young were continued on the mother's diet until records of early growth and maturity were obtained in large numbers, then twenty females and an appropriate number of males of each generation were continued for complete breeding record, records of food consumption being kept in all cases.

To verify the results obtained from this experiment, another comparison was carried out in which the animals selected for the beginning came from the same litter, hence had a common (in fact, precisely identical) immediate ancestry and dietary background, and were of the same age and season.

This litter consisted of two males and six females, so even in weight at 28 days of age that it was possible to form two lots, consiting of one male and three females each, perfectly matched in weight.

Both comparisons were extended through eight generations, and the measures taken to make these strictly comparable and to insure conditions which should meet the requirements for statistical interpretation were as follows:

1. All the original animals were kept for complete life history, so that a sufficiently large number of cases might be obtained for a study of longevity.

2. All the young were kept until the original animals were one year old, then the numbers were necessarily reduced and lots in successive generations were formed so that:

3. Each generation contained 6 lots, each lot consisting of two males and three females, one-half coming from litters born between April and October, the other half, between October and April. Each generation contained about equal numbers of 1st, 2nd, and 3rd or 4th litter young. This method of sampling was chosen because previous studies had shown a seasonal variation in rapidity of growth, food intake, and age at which females matured; and the vitality of young is probably influenced by the animal's being one of a first litter, or of a very late litter.

4. All the animals chosen were kept for complete breeding record and for longevity, except that (for lack of laboratory space) the animals of the 3rd and 7th generations were killed at 20 months of age.

5. The comparison was continued through 8 generations. The necessity of carrying through several generations before drawing conclusions was illustrated in the second comparison described above and in other comparisons, where, through the first six months and in the

first generation, the advantage seemed to lie with the poorer diet. The full effect of a slight alteration in diet in either direction is not felt in the *first* and possibly not to its full extent in the *second* generation. This is borne out by other experiments now in progress.

6. All external conditions were made the same for both sets of animals, including type of cage, housing and exposure. The animals were all caged in rectangular, galvanized iron cages (11 by 14 inches) with removable bottoms which were cleaned daily. Food and distilled water were always accessible, so that although careful records of the food consumption were kept, the animals were never limited in the amount they could eat. The same brands of whole milk powder and whole wheat were used throughout, the latter being ground in the laboratory. The care of the animals has been described in more detail in papers previously published from this laboratory (5, 6, 7).

In evaluating these diets as to efficiency in maintaining health and vigor throughout the complete life cycle the following criteria were used: (*a*) growth of young animal during second month of life, and adult size, (*b*) vigor of adult as shown by ability to bear and rear young, (*c*) size of young at weaning time,[1] (*d*) longevity.

In a comparison of the two diets these have all been considered, but in this paper only the two on which the largest number of cases are available will be used—namely, weight of young at weaning time, and growth of young rat the first 28 days after weaning.

That this type of experiment is one especially amenable to statistical study is pointed out by Chaddock, who, in discussing a problem in which the gains in weight of animals on different diets were compared, says that the non-controllable factors which he calls temperamental, differences in feeding capacity and in activity, are not of predominant influence, act independently and are likely to counteract each other, but that the other factors which are most important, such as kind and quantity of ration, time and method of feeding, care and shelter of animal can all be controlled.

It is the belief of the writer that the conditions outlined earlier for the carrying out of the experiment fulfill these requirements and the following criteria: (*a*) that one must be sure he is dealing with homogeneous data, (*b*) that the premises are correct and bear a causal relation to the effects being measured, (*c*) that the sample is representative and sufficiently large, and (*d*) that the technique is such that all controllable conditions are uniform.

[1] Weaning age in this laboratory is 28 days.

In the discussion of results the average used was the arithmetical mean, and its reliability was established by some of the simpler statistical measures, as follows:

The two frequency distributions (Nos. I, II) show graphically the distribution of the weights of all the male rats weaned in the laboratory by females on the two diets described above, during the first, second and third years of the experiment.

The *median*, which is the value of the midcase when the cases are arrayed in order of magnitude, and the *mode*, the value which occurs the greatest number of times, are given for comparison with the *mean* (the arithmetical average of all the values), since in an ideal bell shaped dis-

TABLE 1

Weight of animals at 28 days of age, weaned during first, second and third years of experiment

	Diet A					Diet B						
	Number of cases	Median	Mode	Mean	Coefficient of variation	Number of cases	Median	Mode	Mean	Coefficient of variation	DIFFERENCE OF MEANS	R $\left(\frac{\text{Diff.}}{\text{P.E.}}\right)$
Males	231 (1 yr.)	33.9	29–30	33.8±0.18								
	319 (2 yr.)	34.2	29–30	34.0±0.14								
	505 (3 yr.)	31.7	29–30	33 2±0.22	22	1226 (1 yr.)	40.8	37–38	40.3±0.17	22	7.1±0.28	25
Females	290 (1 yr.)	31.7	33–34	32.6±0.28								
	381 (2 yr.)	33.4	29–30	32.7±0.22								
	566 (3 yr.)	33.9	29–30	32.6±0.20	22	1298 (1 yr.)	39.5	39–40	39.2±0.16	22	6.6±0.27	24

tribution curve, the mode, mean, and median are identical. Table 1 gives this information in tabular form for the males and for the females weaned during the same period. The frequency distributions assume the same form. In all of these the three measures of central tendency agree very well, especially in the case of the females on diet B.

Table 1 also shows that studies of the weights of the young rats weaned on diet A, over a three year interval compared with a one year interval, caused only a slight change in the value of the mean, although the number of cases was more than doubled.

The mean was chosen as the form of average to be used because it gives equal weight to all the individual cases. While some writers use the *average deviation* (the sum of the individual deviations divided by the

number of cases) for measuring the variability of the distribution, that strictly should be used only with the median and is not so suitable for further mathematical treatment as the *standard deviation*.[2] Hence the standard deviation (the square root of the sum of the squares of the individual deviations divided by the number of cases), which is the

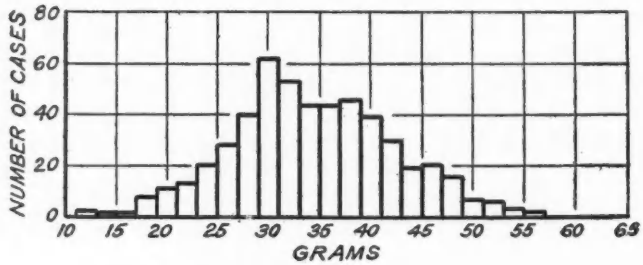

CHART I. WEIGHTS OF MALE RATS ON DIET A AT 28 DAYS OF AGE (505 CASES, MAY 4, 1920, TO DECEMBER 11, 1923)

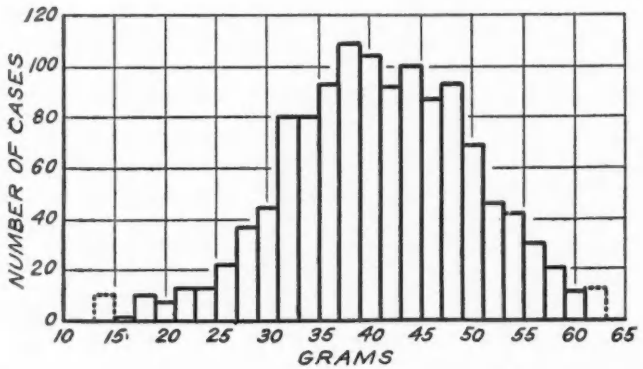

CHART II. WEIGHTS OF MALE RATS ON DIET B AT 28 DAYS OF AGE (1226 CASES, DECEMBER 12, 1922, TO DECEMBER 11, 1923)

measure particularly associated with the mean, is the one used throughout this paper. As a concrete example of the significance of this, reference to table 1 and chart I shows that with a mean of 33.2 and standard deviation of 7.4, 68.3 per cent of the individual cases lie between 25.8 and 40.6 (M. $\pm$ S.D., i.e., 33.2 $\pm$ 7.4), in chart II that 68.3 per cent of

[2] Chaddock, p. 172.

the individual cases lie between 31.5 and 49.1 (40.3 ± 8.8). A further extension of this rule places 95.5 per cent of the cases within a range of mean ± twice the standard deviation (M. ± 2 S.D.)

Frequency distributions (see charts I and II)

CLASS RANGE	FREQUENCIES	
	Chart I	Chart II
Below 15	3	10
15–16	1	1
17–18	7	10
19–20	11	7
21–22	13	13
23–24	20	13
25–26	28	22
27–28	40	37
29–30	62	45
31–32	53	80
33–34	43	80
35–36	43	93
37–38	45	108
39–40	39	104
41–42	29	92
43–44	19	100
45–46	20	87
47–48	15	93
49–50	6	69
51–52	5	46
53–54	2	42
55–56	1	30
57–58	0	20
59–60	0	11
Above 60	0	12
Number of cases	505	1,225
Mode	29–30	37–39
Median	31.7	40.8
Mean	33.2	40.3
S.D.	7.41	8.75
$P.E._M$	±0.22	±0.17
C.V.	22	22
Difference (diets B and A)	8.1±0.28	

Before discussing the means of the two distributions it was desired to compare their relative variability; unless the means are close in value and measured by the same units it is not possible to compare standard deviations directly, and use is made of the *coefficient of variation*, which is simply the standard deviation divided by the mean, expressed as per

cent. In these four cases the coefficient of variation is 22 in every case, showing that the four sets of data are uniform in variability, whereas in charts IV and V, although the standard deviations are alike, the means are so far apart that when we express the variability of the two distributions in per cent we find the individual cases on diet A to show nearly twice as great a variability as those on diet B.

The two terms just discussed, standard deviation and coefficient of variation, define for one the homogeneity of the sample with which he is working, but in nutritional work one more especially wishes to know what the chances are that repeating the experiment will give results checking the first within reasonable limits. For this prediction we make use of the standard deviation of the mean (standard deviation of the individual cases divided by the square root of the number of cases), and the *probable error* of the mean ($\frac{2}{3}$ S.D.$_M$). The simplest definition for probable error—that it defines a limit measured in both directions from the mean, within which the chances are even that any other mean derived from a like sample will fall—has enabled statisticians to draw up the following table of probabilities:

Chances of a new mean falling within M± 1 P.E. are 1:1
M± 2 P.E. are 4½:1
M± 3 P.E. are 21:1
M± 4 P.E. are 142:1
M± 6 P.E. are 19,200:1
M± 9 P.E. are 1,000,000,000:1

According to most authorities M± 3 P.E. is considered high probability, M± 4 P.E. practical certainty in locating another mean derived from a like sample. This rule of chance applied to the mean weights of the young rats used in cases shown in table 1, and by charts I and II, would make the chances 1:1 that 500 more males on diet A would give an average in weight at 28 days lying between 33.0 and 33.4 (33.2 ± 0.2); or the chances are 4½:1 that the mean weight would fall between 32.8 and 33.6 (33.2 ± 2 × 0.2), or 19,200:1 it would be between 32.0 and 34.4 (33.2 ± 6 × 0.2). Another sample of 1200 males on diet B would give a mean weight at 28 days in 1 out of 2 cases lying between 40.1 and 40.5 (40.3 ± 0.2), in 4½ out of 5½ between 39.9 and 40.7 (40.3 ± 2 × 0.2), in 19,200 out of 19,201 between 39.1 and 41.5 (40.3 ± 6 × 0.2).

But the object of this investigation was to establish the difference in efficiency, if any, of the two diets. For this purpose the difference of the corresponding means was found and its reliability established by determining its standard deviation, which is simply the square root of the

sum of the squares of the standard deviations of the two means, using, as before, $\frac{2}{3}$ of this value as the probable error of the differences. The reliability of the difference follows the same law of chance, that is, if R (the symbol for the critical ratio—the ratio of the difference to its probable error) is equal to or greater than 3, the chances are 21:1 that the difference is a true one; if equal to or greater than 4, the chances are 142:1 that no new experiment would reverse the results. This is usually accepted as sufficiently conclusive, but in charts I and II the difference

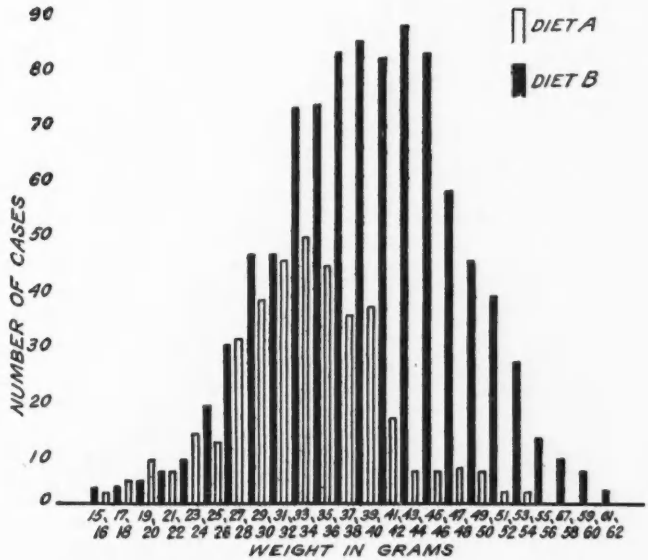

CHART III. WEIGHTS OF FEMALE RATS AT 28 DAYS OF AGE

The majority of the animals on diet A weighed between 27 and 41 grams; on diet B, between 32 and 48 grams.

between the means is 7.1, the P.E. is 0.28, whence R equals 25; and in chart III the difference is 6.6, the P.E. is 0.27, and R equals 24.

When only those animals are considered that were continued on the diets throughout the experiment, a reference to table 2 shows means differing very little from those obtained with the larger groups over a definite time interval, and the differences again are 21 times their probable errors. This is shown graphically for the females in chart III and a very similar distribution would be obtained for males.

Table 3a shows the average gains made by male and female rats the first 28 days after weaning. This is shown graphically for the females in frequency distributions IV and V. Very similar ones would be obtained for the males. The data used in these distributions, as in the first two, were selected to cover a definite time interval (1 or 2 years); again dou-

TABLE 2

Weight at 28 days of those young, continued on diets A and B

	DIET A			DIET B			DIFFERENCE	R
	Number of cases	Means	Coefficient of variation	Number of cases	Means	Coefficient of variation		
Males	305	34.3±0.29	22	730	41.8±0.20	20	7.5±0.35	21
Females	363	33.8±0.24	20	917	40.1±0.18	20	6.3±0.30	21

TABLE 3

Gain in weight first 28 days after weaning, 1 year, 2 years

(See Charts IV, V and VI)

	DIET A					DIET B					DIFFERENCE OF MEANS	R
	Number of cases	Median	Mode	Mean	Coefficient of variation	Number of cases	Median	Mode	Mean	Coefficient of variation		
a. Gain for a definite period of time												
Males	200	40.8	40–44	44.3±0.9	43	200	84.8	75–79	82.9±0.8	20	38.6±1.2	32
	309	38.9	35–39	43.0±0.7	43	400	83.6	85–89	82.3±0.6	22	39.3±0.9	44
Females	200	34.2	30–34	37.0±0.8	46	200	63.0	55–59	62.4±0.6	20	25.4±1.0	25
	371	34.8	30–34	37.2±0.5	39	400	62.8	55–59	62.3±0.4	19	25.1±0.64	40
b. For all animals in comparison of diets A and B, series I and II												
Males	304	38.3	31–35	43.2±0.8	46	730	82.5	86–90	81.1±0.5	23	37.9±0.9	42
Females	364	34.8	26–30	37.9±0.6	42	911	62.7	61–65	62.3±0.3	22	24.4±0.6	41

bling the number of cases did not appreciably alter the mean, and mode and median closely approached the mean.

Table 3b represents the gain in weight of animals continued on the diets for the complete experiment. The distribution for the males is shown graphically in chart VI. This covers a time interval of about 5 years.

In the three distributions on this point the curves show a fair approach to the classical bell shaped curve, and as R was at least 25 the fact that the two diets showed a true difference in efficiency (as measured by gain in weight the first 28 days after weaning) was indisputable.

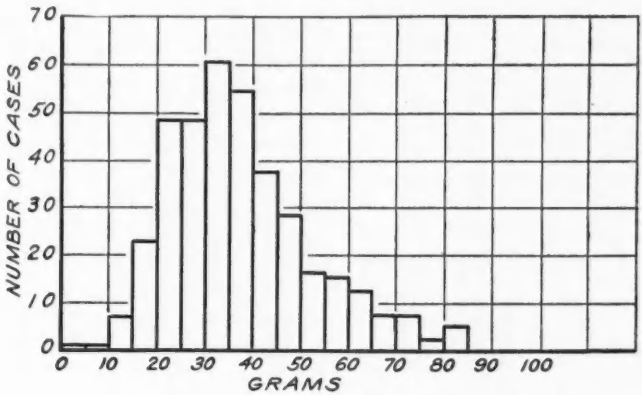

CHART IV. GAIN OF FEMALE RATS ON DIET A FIRST 28 DAYS AFTER WEANING (371 CASES, COVERING 2 YEARS IN TIME)

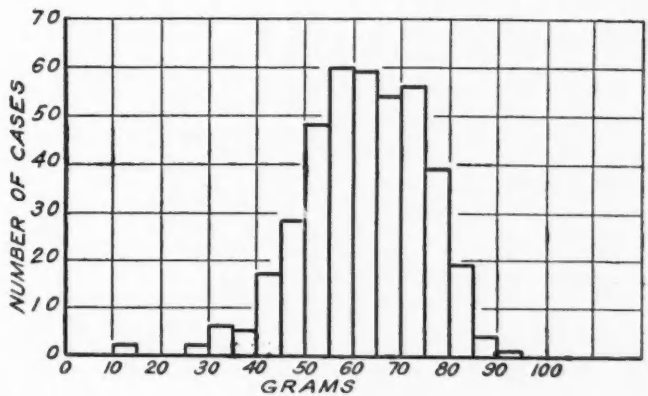

CHART V. GAIN OF FEMALE RATS ON DIET B FIRST 28 DAYS AFTER WEANING (400 CASES, COVERING 2 YEARS IN TIME)

However, one might dispute this conclusion on the ground that perhaps the animals ate more on diet B, hence grew more. This was refuted by calculating the calorie intake per gram of rat per day and the

gain per 1000 calories. In the first case, data collected over exactly 5 calendar years showed the calorie intake per gram of rat to be the same on both diets. And the gain per 1000 calories and per gram of protein showed differences in gain in favor of diet B, with R equal to 23 and 13 respectively.

Frequency distributions (see charts IV and V)

CLASS RANGE	FREQUENCIES	
	Chart IV	Chart V
0–4	1	0
5–9	1	0
10–14	7	2
15–19	23	0
20–24	48	0
25–29	48	2
30–34	60	6
35–39	54	5
40–44	37	17
45–49	28	28
50–54	16	48
55–59	15	60
60–64	12	59
65–69	7	54
70–74	7	56
75–79	2	39
80–84	5	19
85–89	0	4
90–94	0	1
Number of cases	371	400
Mode	30–34	55–59
Median	34.8	62.8
Mean	37.2	62.3
S.D.	14.73	12.30
P.E.M	±0.51	±0.41
C.V.	39	19
Difference of mean (diets B and A)	25.1±0.64	

That the animals made a measurably greater growth throughout the whole growth period and maintained greater adult size on the one diet than on the other, was shown by a comparison of the average weight curves, which after 100 days remained practically parallel.

These last points have been discussed in some detail in earlier papers (7), and are referred to here as points which should be considered in confirmation of the conclusions drawn from a statistical study of early growth records.

A similar study of the reproduction records of over 200 female rats on the two diets gave differences (*a*) in the age of the female at the birth of the first young, (*b*) in the number of young born and reared and (*c*) in the per cent of young reared, differences which were from 11 to 19 times their probable errors and in all cases in favor of the same diet (diet B). This also has been treated in more detail in other publications and is referred to here as being another measure of dietary efficiency which is amenable to statistical study, as is also the study of comparative longevity as affected by diet (8).

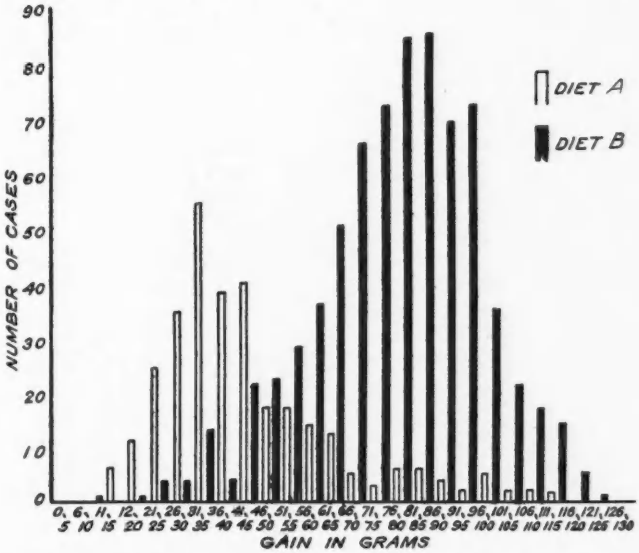

CHART VI. GAIN OF MALE RATS THE FIRST 28 DAYS AFTER WEANING

The majority of the animals on diet A gained between 26 and 45 grams; on diet B, between 61 and 100 grams.

SUMMARY

1. Data on the weight of young rats at weaning time, and on the gain in weight the first 28 days after weaning, secured from feeding experiments in which successive generations of rats were reared on two comparable diets, are submitted.

2. The precautions that must be observed in carrying out such nutritional experiments are given.

3. The statistical measures applicable to such a study are discussed, and conclusions of relative efficiency drawn after such treatment.

4. The other criteria used in determining the relative efficiency of similar diets are mentioned, and results obtained from a statistical study of all are summarized briefly.

5. The results lead to the conclusion that the statistical treatment of data obtained in nutritional research in which the animal experimentation method is employed, is a helpful and proper method of evaluating such studies.

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STANDARDIZATION TRENDS IN FOOD ADMINISTRATION

ISOLA DENMAN

University Hospital, Ann Arbor, Mich.

Food costs from the administrative dietitian's point of view are so vitally related to menu planning and standardization of food purchasing and preparation, as well as to the ultimate consumption, that it would be difficult, if not impossible, to consider one without the other. The costs of foods are so materially affected by these related factors that I consider them the controlling factors in hospital food costs.

First among these controlling factors I would list *menu planning*, second, *unit standardization*, third, *purchasing*, and fourth, the *ultimate consumption*.

The planning of the hospital menu is in reality the laying of the foundation for food expenditure, and its importance in that light cannot be overemphasized. Food cost balance runs hand in hand with dietary balance, and by adding to this that elusive quality which we might call satisfaction we have a basis for menu planning.

As it seems most practical to plan our dinner menus around the dinner meat, it has proved helpful to plan a schedule of "Dinner Meats" for a comparatively long period of time (Chart 1). If we choose a period of five weeks, for instance, and list the meats that we plan to use for the thirty-five dinners during that period, the total cost of these dinner meats for our different groups is charted. You will notice on Chart 2, the comparative cost chart, that over this period the cost curve may appear high at times when the more expensive cuts of meat are used. You will also observe that this is balanced by the cheaper or less choice meats which bring the average within the per capita meat allowance. At the same time this schedule makes possible the much desired variety in the institutional menu.

On Chart 1 you will note that roast beef was used five times, or for one dinner of each week, but not on the same day. It appears in the successive weeks on Saturday, Friday, Monday, Wednesday, and Sunday. This eliminates the possibility of having the same meat appear always on a certain day of the week. Surprises in foods are interesting and intriguing to jaded appetites.

At the end of the five weeks period a similar chart is made for the next five weeks, making whatever changes may seem wise or necessary because of the change in season, popularity of the food, or fluctuating food costs.

CHART OF DINNER MEATS FOR FIVE WEEKS

Day	1st Week	2nd Week	3rd Week	4th Week	5th Week
Wed.	Beef a la Mode	Br. Veal Cutlets	Pork Chops	Roast Beef	Roast Veal
Thurs.	Roast Pork	Roast Lamb	Baked Ham	Pork Chops	Swiss Steak
Fri.	Fish	Roast Beef	Fish	Veal Chops	Fish
Sat.	Roast Beef	Roast Veal	Swiss Steak	Baked Ham	Pork Chops
Sun.	Roast Chicken	Chicken Fricassee	Roast Pork	Fried Chicken	Roast Beef
Mon.	Pork Chops	Baked Ham	Roast Beef	Roast Pork	Meat Pie
Tues.	Baked Ham	Swiss Steak	Chicken a la King	Roast Lamb	Veal Cutlets

Roast Beef	5	Roast Pork	3	Roast Veal	2
Beef a la Mode	1	Pork Chops	4	Veal Cutlets	2
Swiss Steak	4	Baked Ham	5	Veal Chops	1
Chicken	4	Fish	3	Roast Lamb	2

CHART 1

Lamb, for instance, which you will note was used for two dinners on this chart, probably would not be used during January and February.

Working from this meat chart, we know that certain vegetable flavors are more complementary to the flavor of each of these dinner meats; therefore our next step, which will be fairly simple, is to select the vege-

tables for the menus. To aid us in this selection, Chart 3, showing the comparative costs of available vegetables, will prove most helpful. It shows the difference in cost of the canned and fresh vegetables, as well as the relatively inexpensive and the too-expensive ones at any given

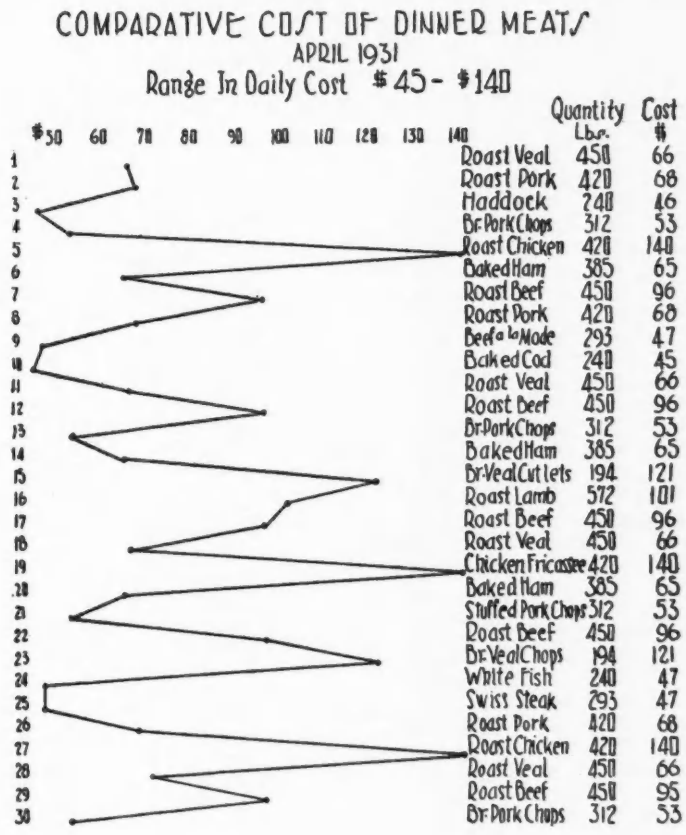
COMPARATIVE COST OF DINNER MEATS
APRIL 1931
Range In Daily Cost $45 - $140
$50 60 70 80 90 100 110 120 130 140
Quantity Lbs. Cost $
1 Roast Veal 450 66
2 Roast Pork 420 68
3 Haddock 240 46
4 Br. Pork Chops 312 53
5 Roast Chicken 420 140
6 Baked Ham 385 65
7 Roast Beef 450 96
8 Roast Pork 420 68
9 Beef a la Mode 293 47
10 Baked Cod 240 45
11 Roast Veal 450 66
12 Roast Beef 450 96
13 Br. Pork Chops 312 53
14 Baked Ham 385 65
15 Br. Veal Cutlets 194 121
16 Roast Lamb 572 101
17 Roast Beef 450 96
18 Roast Veal 450 66
19 Chicken Fricassee 420 140
20 Baked Ham 385 65
21 Stuffed Pork Chops 312 53
22 Roast Beef 450 96
23 Br. Veal Chops 194 121
24 White Fish 240 47
25 Swiss Steak 293 47
26 Roast Pork 420 68
27 Roast Chicken 420 140
28 Roast Veal 450 66
29 Roast Beef 450 95
30 Br. Pork Chops 312 53

CHART 2

season. The cost per purchase unit for any individual item may be small, but it is the comparison of the costs of the total amounts needed to serve a definite group which is truly interesting. In considering the vegetables we would not compare the cost per can of tomatoes with the cost per pound of peas, but we would compare the total cost of canned tomatoes

needed to serve a definite number of people with the total cost of fresh peas to serve the same group. By putting this information into chart form we may readily see (1) the date served, (2) the total amount needed, (3) the total cost, and (4) how it compares with the total cost of each of

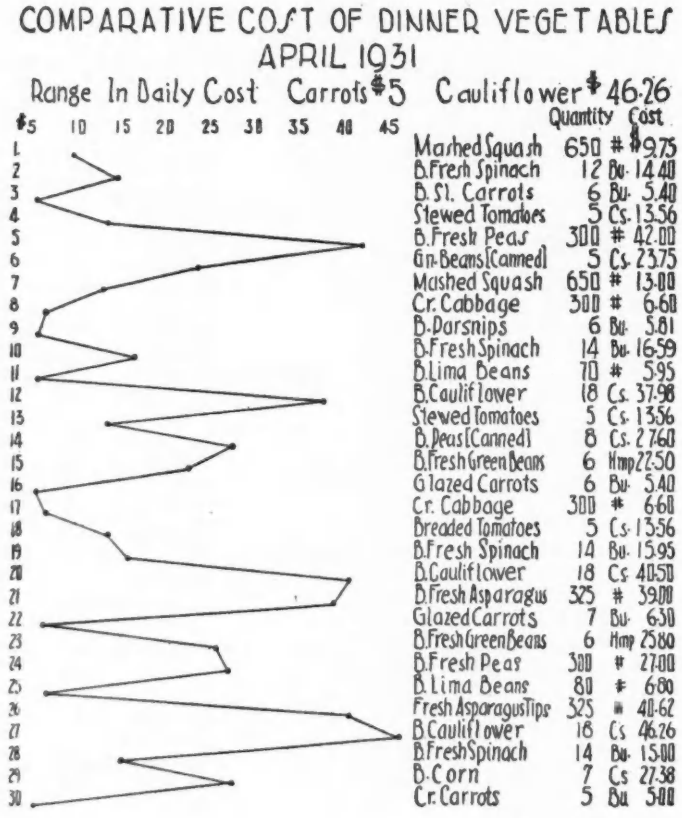
COMPARATIVE COST OF DINNER VEGETABLES
APRIL 1931
Range In Daily Cost Carrots $5 Cauliflower $ 46.26
$5 10 15 20 25 30 35 40 45
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Quantity Cost
Mashed Squash 650 # $9.75
B. Fresh Spinach 12 Bu. 14.40
B. St. Carrots 6 Bu. 5.40
Stewed Tomatoes 5 Cs. 13.56
B. Fresh Peas 300 # 42.00
Gn. Beans [Canned] 5 Cs. 23.75
Mashed Squash 650 # 13.00
Cr. Cabbage 300 # 6.60
B. Parsnips 6 Bu. 5.81
B. Fresh Spinach 14 Bu. 16.59
B. Lima Beans 70 # 5.95
B. Cauliflower 18 Cs. 37.98
Stewed Tomatoes 5 Cs. 13.56
B. Peas [Canned] 8 Cs. 27.60
B. Fresh Green Beans 6 Hmp 22.50
Glazed Carrots 6 Bu. 5.40
Cr. Cabbage 300 # 6.60
Breaded Tomatoes 5 Cs. 13.56
B. Fresh Spinach 14 Bu. 15.95
B. Cauliflower 18 Cs 40.50
B. Fresh Asparagus 325 # 39.00
Glazed Carrots 7 Bu. 6.30
B. Fresh Green Beans 6 Hmp 25.80
B. Fresh Peas 300 # 27.00
B. Lima Beans 80 # 6.80
Fresh Asparagus Tips 325 # 41.62
B. Cauliflower 18 Cs 46.26
B. Fresh Spinach 14 Bu. 15.00
B. Corn 7 Cs 27.38
Cr. Carrots 5 Bu 5.00

CHART 3

the other vegetables used during that month. Chart 4 shows the comparative costs of breakfast fruits. Chart 5 shows the vegetable cost range from year to year.

Continuing with the menu planning, we consider more definitely the aesthetic element; the vegetables contribute color and flavor, and in

addition we have the salad with its unlimited possibilities. In this connection we could not fail to mention the garnish or meat accompaniment which adds so much and costs so little.

The dessert, which is the finishing touch to a menu, depends so definitely upon the character of the rest of the meal that it is impractical to

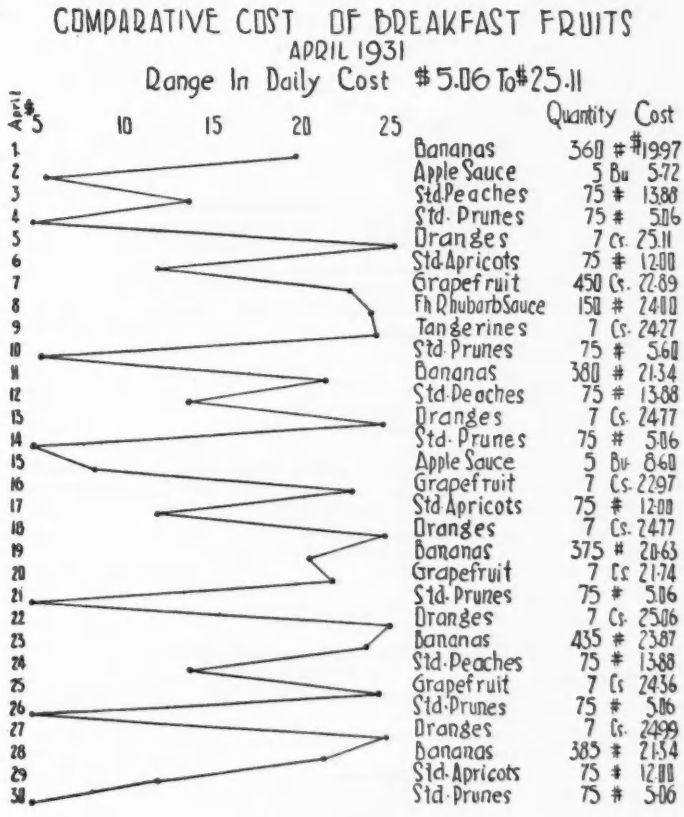
COMPARATIVE COST OF BREAKFAST FRUITS
APRIL 1931
Range In Daily Cost $5.06 To $25.11
April
$ 5 10 15 20 25
1 Bananas 360 # $19.97
2 Apple Sauce 5 Bu 5.72
3 Std. Peaches 75 # 13.88
4 Std. Prunes 75 # 5.06
5 Oranges 7 Cs. 25.11
6 Std. Apricots 75 # 12.00
7 Grapefruit 450 Cs. 22.89
8 Fh Rhubarb Sauce 150 # 24.00
9 Tangerines 7 Cs. 24.27
10 Std. Prunes 75 # 5.60
11 Bananas 380 # 21.34
12 Std. Peaches 75 # 13.88
13 Oranges 7 Cs. 24.77
14 Std. Prunes 75 # 5.06
15 Apple Sauce 5 Bu 8.60
16 Grapefruit 7 Cs. 22.97
17 Std. Apricots 75 # 12.00
18 Oranges 7 Cs. 24.77
19 Bananas 375 # 20.63
20 Grapefruit 7 Cs 21.74
21 Std. Prunes 75 # 5.06
22 Oranges 7 Cs. 25.06
23 Bananas 435 # 23.87
24 Std. Peaches 75 # 13.88
25 Grapefruit 7 Cs 24.36
26 Std. Prunes 75 # 5.06
27 Oranges 7 Cs. 24.99
28 Bananas 385 # 21.54
29 Std. Apricots 75 # 12.00
30 Std. Prunes 75 # 5.06

CHART 4

discuss it here other than to suggest a chart of the costs per serving of various desserts. This will enable one to choose an inexpensive dessert if the cost of some other article on the menu is unusually high, while if the cost is quite low and the menu needs an added interest one may choose

from the more expensive desserts and still keep the per capita cost for the meal within the proposed allowance.

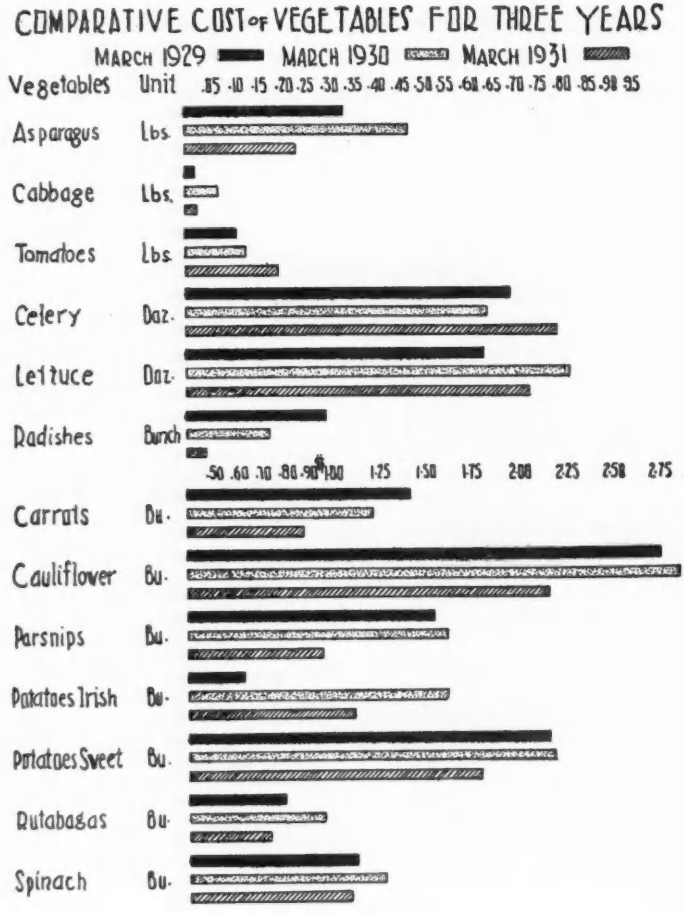

CHART 5

Before we go into any discussion of purchasing may I suggest a method of unit standardization. Each recipe may be standardized so that it will produce a definite quality and quantity. A recipe which has been tested and approved is put on file for the use of the personnel and the

UNIVERSITY HOSPITAL RECIPE

(1 Pudding) 25 Portions	(31 Puddings) 775 Portions	Ingredients	Unit	U.Cost	Cost
6 Oz. (1¼ Cup)	20 #	Flour	#	.036	.72
6 Oz.	20 #	Bread Crumbs		⅓c	
3/4 #	13 #	Suet		⅓c	
3/4 #	9 #	Currants	#	.145	1.31
3 Oz	7 #	Citron	#	.45	3.15
3/4 #	18 #	Apples - Chopped	#	.02	.36
3/4 #	13 ½ #	Raisins	#	.066	.90
6	80	Eggs	Doz	.26	1.74
10.02	6 3/4 #	Sugar	#	.056	3.78
1 C	1 3/4 pts	Molasses	Qt.	.083	.73
3/4 tsp.	10 oz.	Baking Powder	#	.08	.05
2 tsp	12 oz.	Cinamon, Cloves, Mace, Nutmeg	#	.21	.16
1 tsp.	8 oz.	Salt	#	.08	.04
1 Cup	3⅓ gal	Milk	Gal.	.317	1.06
					14.00
		1 Pudding @ 45			
		Per Serving .018			

Recipe	Size of Portion	Average Portion Cost
Steamed Plum Pudding	1 (25 Serv. from 1 Pudding Mold)	.018

CHART 6

UNIVERSITY OF MICHIGAN HOSPITAL
FOOD QUANTITIES AND COSTS

ARTICLE of FOOD	PURCHASE UNIT	UNIT COST April 5	PORTION COST	50 PORTIONS	100 PORTIONS	500 PORTIONS	1000 PORTIONS
Fresh Peas	#	#		10	40	180	400
	Hamper	$			1⅓	6	13⅓
	(Peas In Pod = 30 # To Hamper)						
	(Peas In Pod - Average Yield = 3 Portions Per #)						
Canned Peas	No. 10 can	$ .575		2	5	20	48
Home Grown Brand	Cs.	3.45				3⅓	8
Mich State Cannery	(1 No. 10 Can Yields 25 Portions)						
	(1 Cs. = 6 No. 10 Cans)						
	(1 Cs. Yields 150 Portions)						

Peas - Fresh and Canned — Quantities for Ordering

CHART 7

result will be a uniform product whenever it is prepared. The individual serving portion is also standardized for each recipe. This information

UNIVERSITY OF MICHIGAN
UNIVERSITY HOSPITAL
MAIN HOSPITAL MENU

Thursday, April 16, 1931

PATIENTS	CHILDREN	NURSES	STAFF
Breakfast	Breakfast	Breakfast	Breakfast
Grapefruit Strawberry Preserves Oatmeal Cornflakes Bacon Strips Toast Coffee - Milk	Orange Juice Oatmeal Toast Milk	Grapefruit Strawberry Preserves Cornflakes Oatmeal Bacon Strips Toast Coffee - Milk	Grapefruit Strawberry Preserves Cornflakes Oatmeal Bacon Strips Toast Coffee - Milk
Dinner	Dinner	Luncheon	Luncheon
Julienne Soup Roast Lamb - Gravy Pineapple Mint Jelly in Lettuce Cup Cr. Whole Potatoes Glazed Carrots Shredded Lettuce Russian Dressing Vanilla Ice Cream Orange Sauce Tea - Milk	Julienne Soup Roast Lamb - Gravy Celery Mashed Potatoes Buttered Carrots Vanilla Ice Cream Milk	Cr. of Tomato Soup Saltines Egg Sandwiches Dill Pickles Jellied Veg. Salad Mayonnaise Dres. Devils Food a la mode Chocolate Sauce Tea - Milk	Cr. of Tomato Soup Saltines Egg Sandwiches Dill Pickles Jellied Veg. Salad Mayonnaise Dres. Devils Food a la mode Chocolate Sauce Tea - Milk
Supper	Supper	Dinner	Dinner
Cr. of Fresh Asp- aragus Soup Saltines Tomato & Egg Salad Mayonnaise Dres Dill Pickle Garnish Stuffed Baked Potato Apple Turnover Foamy Sauce Tea - Milk	Cr. of Tomato Soup Saltines Bacon Strips Baked Potatoes Shredded Lettuce Apple Sauce Sugar Cookies Milk	Roast Lamb - Gravy Pineapple Mint Jelly in Lettuce Cup Cr. Whole Potatoes Glazed Carrots Shredded Lettuce Russian Dressing Apple Turnover Foamy Sauce Coffee - Milk	Broiled Lamb Chops Pineapple Mint Jelly in Lettuce Cup Baked Potatoes Glazed Carrots Shredded Lettuce Russian Dressing Apple Turnover Foamy Sauce Coffee - Milk

CHART 8

then is valuable in estimating purchasing amounts. Chart 6 shows a standardized recipe. The amounts are given for a large and small number of serving portions. The cost of the serving portion as well as the

total cost of the large recipe is recorded. Institutions are becoming very much interested in standardizing their recipes in this manner.

Another step in unit standardization is shown in Chart 7. This card of food quantities and costs gives easily accessible information on specific

ADVANCED FOOD ORDER

DATE TO STORES APRIL 8-1931

April 14		
1100		Bananas (380#)
4	Cs.	Pineapples (125s)
1	#	Bean Sprouts
18	Cs.	Cauliflower
1	Cs.	Celery
6	Hampers	Green Beans
4	Cases	Lettuce, head
60	#	Lettuce, leaf
6	Bunches	Parsley
5	#	Mushrooms
April 15		
3	Bu	Apples, Cooking
450		Grapefruit (80s)
1	Cs.	Oranges (252s)
40	#	Asparagus
6	Bu	Carrots
1	Cs.	Celery
5	Cs	Lettuce, head
50	#	Lettuce, leaf
60	#	Tomatoes
April 16		
5	Cs	Oranges (216s)
2	Cs.	Oranges (252s)
4	Cs.	Celery
3	Doz.	Eggs Plants (1 Cs. -36s)
60	#	Lettuce, leaf
6	Bu.	Onions
2	Bunches	Parsley
6	Cs.	Green Peppers
3	Boxes	Radishes (60 Doz. Each)

CHART 9

items concerning quantities to purchase and costs of serving each commodity to a definite group. With this information available let us consider food purchasing. The food buyer should have a knowledge not only of the foods themselves, but of their source, production, distribution,

market fluctuation, seasons of "peak production," and price range for the year. Charts showing the "peak production" and "non-production" periods for different foods on the market should be helpful. In any large institution a system of advance ordering is desirable for a smooth

REQUISITION ON PURCHASING DEPARTMENT

UNIVERSITY OF MICHIGAN

DATE April 14 19 31

CHARGE TO
DEPARTMENT OF Hosp. Stores
ACCOUNT Current

PURCHASING AGENT:

PLEASE FURNISH FOR THE ABOVE DEPARTMENT THE ITEMS LISTED BELOW.

ESTIMATED COST $ _____ ORDERED R. A. Howard
HEAD OF DEPARTMENT OR AUTHORIZED REPRESENTATIVE

WANTED BY _____ 19 _____ (1)

	QUANTITY	DESCRIPTION	LEAVE BLANK Est.	Actual		ORDER NO
	40	# Asparagus	25	25		279508
	6	Bu. Carrots	90	90		
	18	Cases Cauliflower	2 10	2 00		
	6	Cases Celery	7 00	7 00		
OMIT	1	Case Egg plant (36¢)	6 15	0		
	6	Hampers Green Beans	4 00	3 75		
OMIT	6	Cases Green Peppers (125¢)	7 00	0		
	15	Baskets Lettuce, Leaf (10¢ each)	1 20	1 35		
	14	Cases Lettuce, head	3 50	3 25		
	5	Boxes Mushrooms	40	40		
	6	Beds Onions	85	65		
	2doz	Bch. Parsley	45	35		
	3	Boxes Radishes	1 80	2 00		

NOTE When material required can be secured only from a single firm, please fill in name here

ORDER FROM L. Schiappacasse & Co.
ADDRESS 322 Woodward
Detroit
Mich

COPIES OF ORDERS WILL BE TRANSMITTED TO DEPARTMENTS AS SOON AS PLACED
IN ADDING THE PURCHASING DEPARTMENT FOR INFORMATION IN REGARD TO THIS REQUISITION PLEASE REFER TO ORDER NUMBER.

PURCHASING AGENT'S MEMORANDA
Balance $ _____ Est Cost $ _____

APPROVED: F. H. D
PURCHASING AGENT

CHART 10

running organization. The following plan is suggested. The menu (Chart 8) is planned well in advance in order to provide for an advance order of perishables, or foods which are not stocked regularly in the hospital storerooms. These perishables are listed, and when the time for

purchasing arrives the list is checked with the current market quotations and the dietitian decides if the food is to be purchased or a substitution made if the price is prohibitive. Chart 9 shows an advance food order

REQUISITION ON PURCHASING DEPARTMENT

UNIVERSITY OF MICHIGAN

DATE April 14 1931

FILL IN NAME OF DEPARTMENT AND BUDGET ACCOUNT HERE:

CHARGE TO

DEPARTMENT OF Hosp. Stores

ACCOUNT Current

PURCHASING AGENT:

PLEASE FURNISH FOR THE ABOVE DEPARTMENT THE ITEMS LISTED BELOW.

ESTIMATED COST $_____ SIGNED R. A Howard

HEAD OF DEPARTMENT OR AUTHORIZED REPRESENTATIVE

WANTED BY _____ 19_____ (2)

	QUANTITY	DESCRIPTION	LEAVE BLANK Est.	Actual	ORDER NO.
	15	Cartons Fresh Tomatoes	3 25	3 00	279308
	3	Bu. Apples, Cooking	1 50	1 35	
	380	# Bananas	.055	.055	
	6	Cases Grapefruit (80's)	2 75	2 82	
	12	Cases Oranges (216's)	3 50	3 50	
	12	Cases Oranges (252's)	3 25	3 25	
ont	(4)	Cases Pineapples (24's)	5 25	0	
	5	Quarts Strawberries	45	45	
		Confirming Phone Order 4-14-31			
		Delivery 4-14-31 By U of M Trucks As Per			
		Phone Quotations Of Mr. Lalwanda			

NOTE. When material required can be secured only from a single firm, please fill in name here

ORDER FROM L. Schiappacassee & Co.

ADDRESS 322 Woodward

Detroit

Mich

PURCHASING AGENT'S MEMORANDA

Balance $_____ Est. Cost $_____

COPIES OF ORDERS WILL BE TRANSMITTED TO DEPARTMENTS AS SOON AS PLACED. IN ASKING THE PURCHASING DEPARTMENT FOR INFORMATION IN REGARD TO THIS REQUISITION PLEASE REFER TO ORDER NUMBER.

APPROVED: F. H. D.

PURCHASING AGENT

CHART 11

of this type for a three day purchase. Charts 10 and 11 show a few items in which the cost did not warrant the expenditure and the purchases were not made.

Chart 12, showing the comparative per capita costs of raw foods, and Chart 13, giving the comparative per capita costs of food, personnel, and

other expenses may be of interest. Chart 14, showing the distribution of each dollar expended during the year 1929–1930 stresses the importance of the study of food costs. Chart 15 shows the cost of food for twenty-four girls for the week of March 19–26, 1931, comparing the cost of the food from wholesale, retail chain, and retail delivery.

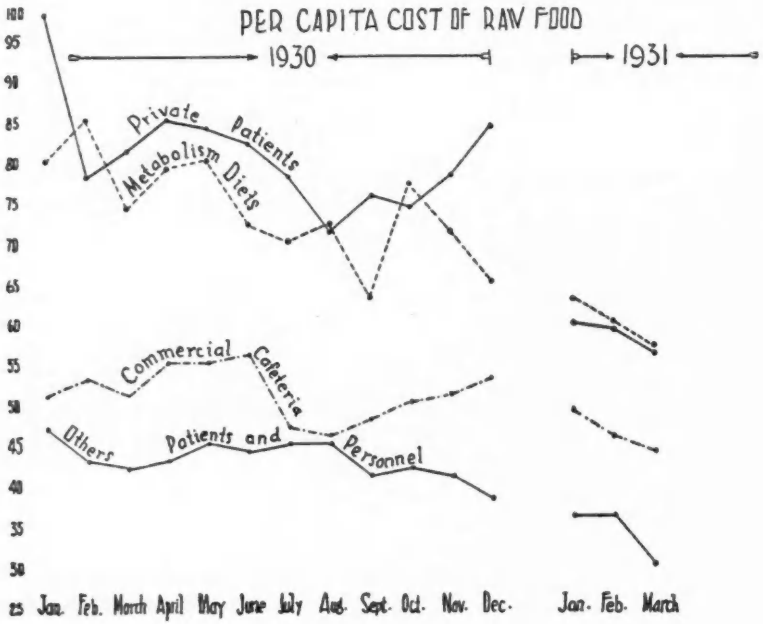

CHART 12

Cost, in itself, is no criterion of good institutional feeding. The dollar value of each individual item may be small or large, but it is only through a definite correlation of menu planning, unit standardization, food purchasing, and complete utilization of foods that food costs in any institution may be satisfactorily controlled.

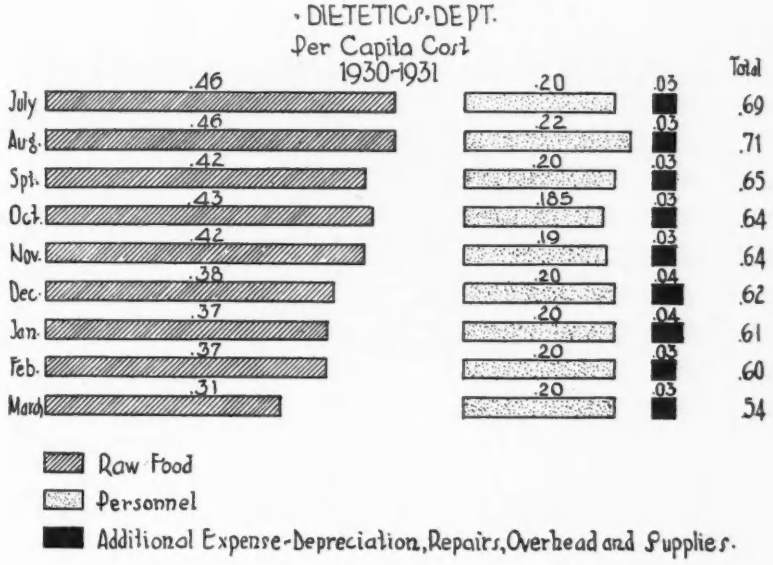
DIETETICS DEPT.
Per Capita Cost
1930-1931
Total
July .46 .20 .03 .69
Aug. .46 .22 .03 .71
Spt. .42 .20 .03 .65
Oct. .43 .185 .03 .64
Nov. .42 .19 .03 .64
Dec. .38 .20 .04 .62
Jan. .37 .20 .04 .61
Feb. .37 .20 .03 .60
March .31 .20 .03 .54
Raw Food
Personnel
Additional Expense-Depreciation, Repairs, Overhead and Supplies.

CHART 13

DISTRIBUTION OF EACH DOLLAR EXPENDED
UNIVERSITY HOSPITAL
1929 - 1930

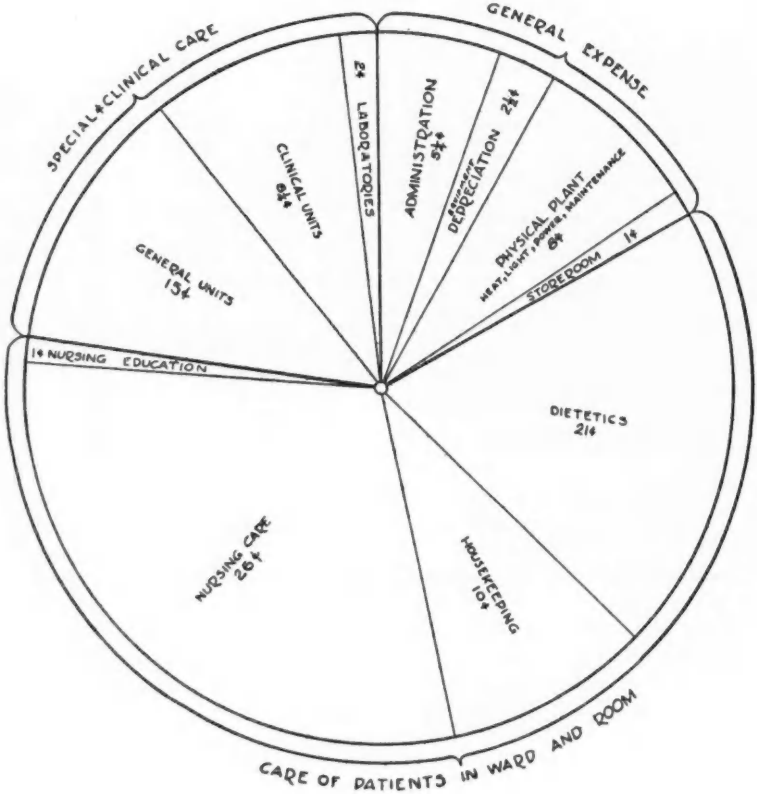

CHART 14

Cost Of Food For 24 Girls For Week March 19-26-1931

	WHOLESALE		RETAIL CHAIN		RETAIL DELIVERY	
COST FOR 24 GIRLS	COST FOR ONE WEEK	% Cost	COST FOR ONE WEEK	% Cost	COST FOR ONE WEEK	% Cost
VEGETABLES	$8.602	17.1	9.20	13.7	12.64	16.5
FRUITS	6.313	12.6	8.20	12.2	10.64	13.9
MILK, CREAM COTTAGE CHEESE	13.606	27.1	23.30	34.8	23.54	30.7
MEAT, FISH, EGG	13.301	26.5	16.83	25.1	18.85	24.6
BREAD & CEREALS	2.658	5.3	2.87	4.3	4.16	5.4
SUGAR & SWEETS	1.110	2.2	1.14	1.7	.98	1.3
BUTTER & FATS	4.128	8.2	4.95	7.4	5.23	6.8
MISCELLANEOUS	.473	.9	.53	.7	.67	.9
TOTAL	$50.191	99.9%	$67.02	99.9%	$76.71	100.1%

COST PER CHILD	COST PER WEEK	AVERAGE DAILY COST	Wed.	Thu.	Fri.	Sat.	Sun.	Mon.	Tues.
Wholesale	$2.09	30¢	35¢	30¢	27¢	32¢	36¢	24¢	25¢
Retail (chain)	2.79	40¢	48¢	38¢	36¢	43¢	46¢	34¢	35¢
Retail delivery	3.19	46¢	55¢	44¢	41¢	49¢	53¢	37¢	40¢

CHART 15

IS FAT A NECESSARY CONSTITUENT OF THE DIET?

A Review[1]

MARTHA KOEHNE

So much publicity has been given since 1912 to the higher nutritive value of butter and certain other commonly used animal fats in contrast with lard and the vegetable oils, because of the presence of vitamin A in the former and its absence from the latter, that the research of the last three or four years, which has demonstrated that this second group of fats probably has a peculiar nutritive value not possessed by butter, comes as a much needed warning not to condemn too hastily any wholesome, commonly used food material, and as a further encouragement to distribute our selection of foods as widely as practicable.

Osborne and Mendel, in 1920, were the first in this country to study the effect of fat-free diets on the growth of an animal. Their observations were made on the albino rat and their conclusions were that fats are not essential in the diet. Rats on the fat-free rations, although consuming considerably more food per unit gain in weight, grew as well as those receiving fat. In their experiments, however, the fatty material was not removed from the cornstarch which comprised 72 per cent of the ration, nor from the yeast and dry alfalfa which were given as daily vitamin supplements. Evans and Burr subsequently criticized Osborne and Mendel's conclusions because their animals had consumed this trace of fat.

In the decade following Osborne and Mendel's report the prevailing sentiment among students of nutrition was that fats, though scientifically dispensable, nevertheless contributed a satisfying property to the diet which made their regular inclusion altogether desirable. The recent war emphasized that when the diet of a community contained too little fat, hunger was quite insistent and persistent and, due to the resulting overconsumption of carbohydrate, digestive disorders were common.

The first suspicion that perhaps some fat, *per se*, was needed in the diet came as a result of some observations made by Evans and Burr in 1927 and 1928. They substituted highly purified casein for Osborne and Mendel's meat residue, and pure sucrose for their unextracted cornstarch.

[1] Received for publication July 9, 1931.

Other rations contained commercial casein and commercial sucrose or cornstarch. Fat in amounts varying from 5 to 20 per cent took the place of equivalent percentages of sucrose or cornstarch in some of the rations. Lard, butterfat, corn oil, and cocoanut oil were compared in this way. Lard was found to be superior to the other fats in preventing the complete nutritional failure that resulted when all fat was excluded from the diet. Fleischman's yeast in fixed daily dosages supplied the vitamin B complex. Vitamin A, however, was not so systematically supplied, which probably accounts for some discrepancies in their results. Evans and Burr found that the curative factor in lard was in the fatty acid fraction after saponification and demonstrated that it was not stearic acid.

Burr and Burr have since continued these investigations and have gradually developed a technique that provides a seemingly clear-cut, scientific demonstration of the necessity for including in the diet of animals certain unsaturated fatty acids not found in butter or hydrogenated oils.

Burr and Burr, in 1929, offered three possible explanations of their results: the effect of maintaining animals on fat-free diets either lessened absorption from the digestive tract, or was a demonstration either that animals needed certain fatty acids supplied in their food because of inability to synthesize them, or that they needed a new fat-soluble vitamin.

Whether fat was a part of the basal ration or not, three distinct levels of protein were used by Burr and Burr, providing diets in which the nutritive ratio (proportion of protein to energy components) was either 1:3, 1:5, or 1:7. McCollum's salt mixture was used in such amounts that every one hundred calorie portion of a given ration contained 1 gram of the salt mixture. Highly purified casein was used as a source of protein. Pure sucrose, not further extracted, was the only source of carbohydrate. Each animal received a daily dosage of 0.60 gram of ether-extracted dehydrated yeast as a source of vitamin B complex, and a dosage of the unsaponifiable portion of a high grade cod liver oil, in amount equivalent to 70 mgm. of the original oil, as a source of vitamins A and B. Distilled water was given to the animals. The use of diets providing different levels of protein intake, with all other factors constant, permitted observations on the effect of increasing amounts of protein on the progress of symptoms. Young rats used were produced from a constant stock diet and had an average weaning weight of 35 grams when twenty-one days old.

In their reports of 1929 and 1930, Burr and Burr give a summary of the results of rigid exclusion of fat from the diet of their rats.

Effect on weight. The young rats ceased to grow when their weight was about 25 per cent under that of controls on the same diet plus lard. Their weight then remained stationary for from a few weeks to several months. Usually after they had been on the fat-free diet for five months they began to lose weight, and after three or four more months they died.

Superficial symptoms. The first symptom to develop was scaliness of the hind feet, which was evident usually in two or three weeks. Excessive dandruff on the back was noticeable almost as soon. The marked hair loss and the skin lesions that developed resembled pellagra, except that, unlike animals deprived of vitamin G, there were no ulcers, the hind parts were first affected, and the customary method of supplying vitamin G had no effect in restoring a normal condition. There gradually developed a very marked necrosis of the tail and the feet.

Effect on reproduction. The customary sex response of the male rat disappeared and the testes became small and watery. The inclusion of vitamin E helped somewhat but did not correct the condition. In females the oestrus cycle was very irregular, and the giving of vitamin E was of almost no value. The authors ventured the suggestion that both the male and female reproductive hormones contain essential lipoids which cannot be synthesized if certain unsaturated fatty acids are regularly absent in the diet.

Effect on kidneys. The urine, in the later stages of deprivation of certain unsaturated fatty acids, was very bloody. On autopsy the kidneys and urinary tract showed marked degeneration. If the animals had received one of the fat-free diets high in protein, bloody urine developed earlier—there being an apparent speeding up of breakdown of kidney function, already weakened in some way by depriving the animals of certain unsaturated fatty acids. McAmis, Anderson, and Mendel, in 1929, reported finding gelatinous masses in the bladders of rats kept on fat-free diets, the presence of urinary calculi, and a very mottled appearance of the kidneys.

Effect on water exchange. The emaciated rats deprived of fat consumed twice as much water as did controls of the same age and normal weight, but excreted a smaller volume of urine. The feces were very dry. The emaciated rats also ate as much food as their controls. Burr and Burr concluded that the excessive water loss must be through lungs and skin, and ventured the suggestion that the membrane that normally separates an animal from its dry environment had ceased to function, probably due to absence of water-insoluble lipoids which such animals cannot synthesize when regularly deprived of essential fatty acids.

In their efforts to study the chemical composition of true physiological fat, McAmis, Anderson and Mendel, in 1928 and 1929, reported somewhat similar conditions developing in their rats fed fat-free rations. Palmer and Kennedy, however, denied the validity of Evans and Burr's claims. Inasmuch as their animals received daily dosages of unextracted yeast and of cod liver oil, serious consideration cannot be given to their objections.

Further evidence that small amounts of certain fats played a peculiar rôle in metabolism, apart from being a source of metabolite, was supplied by Wesson, in 1927, while studying the respiratory quotients of rats, on a restricted fat low dietary regime, that were fasted and then given fixed test meals of dextrin and water. Respiratory quotients considerably above 1.0 were unexpectedly obtained after these test meals in spite of the emaciation of the animals. His work in 1931 (a) indicated that respiratory quotients above 1.0 were never obtained under similar experimental conditions in animals fed normal diets, but were always found (1931b) when testing rats on Burr and Burr's fat-free diets. In 1927, Wesson demonstrated that minute amounts of lard or other fat-containing substances would promptly bring about normal respiratory quotient values. His report in 1931 (b) failed to corroborate this finding, using sources of essential fatty acids, perhaps because of more complete fat deprivation and too short a period of dosage preliminary to the test period.

The work of Burr and Burr 1930 and 1931 has shown that the effects on rats of long continued use of diets devoid of fat, are explainable wholly on the basis of deprivation with respect to one or the other of two unsaturated fatty acids which the warm blooded animal is apparently unable to synthesize—linoleic or linolic acid ($C_{17}H_{31}$ COOH) and linolenic acid ($C_{17}H_{29}COOH$).

Linoleic acid contains two unsaturated carbon atoms, or two double bonds, while linolenic contains three. It is apparently immaterial whether the diet contains oleic acid ($C_{17}H_{33}COOH$) having one double bond, or the common saturated fatty acids, palmitic and stearic. The animal body seems to be able to synthesize these fatty acids from carbohydrates, and from the carbon-hydrogen-oxygen residue of certain amino acids from protein.

The following figures show the percentages of linoleic (linolic) and linolenic acids in some of our common food fats:

	LINOLEIC OR LINOLIC ACID	LINOLENIC ACID
	per cent	*per cent*
Soya bean oil	51.5	2.3
Corn oil	40.9	
Peanut oil	24.7	
Cottonseed oil	41.7	
Butter fat		
Lard	7.06	
Cocoanut oil		

Poppyseed oil and olive oil are somewhat comparable to corn, peanut, and cottonseed oils. Linseed oil is rich in both linolic and linolenic acids. Tung oil contains an isomer of linoleic acid (eleostearic acid). Cod liver oils contain both linolic and linolenic acids as well as some of a still higher degree of unsaturation.

The value of fats as curative agents for animals deprived of all fat for long periods of time is proportional to the amounts of linolic and linolenic acids they contain. Methyl linolate and methyl linolenate highly purified, have been found effective in minute amounts. Butter and cocoanut oil and hydrogenated vegetable oils (that are commonly used in place of lard and butter) are wholly ineffective curative agents regardless of the amount fed. Tung oil effects a very slow cure, apparently undergoing gradual rearrangement within the body.

Berglund, Keefer, and Yang report a peculiar anemia, very prevalent in North China among people whose diets are very low in fat, which responds very quickly to treatment with cod liver oil. This treatment is ineffective in other forms of anemia found among the patients. Is this an additional manifestation of the effect of a low fat diet *per se?* Burr and Burr report no observations on the blood picture of their animals.

OCCURRENCE OF LINOLIC AND LINOLENIC ACIDS IN ANIMAL TISSUES

Bloor, Theis, Brown, Eckstein, Levene and Rolf, and others have spent considerable time studying the fatty acid make-up of lipins found in various body tissues. A general difficulty in making determinations of the highly unsaturated acids has been the setting up of conditions that would permit their recovery as such, unoxidized. With the best method Bloor devised, 25 per cent of his material was not recoverable. Therefore any statement of the absence of these acids in body tissue cannot be

accepted as final. Positive evidence of their presence is of greater immediate value.

Theis (1929) reported finding linolic but not linolenic acid present in the phospholipin fraction of human liver. Bloor (1928) could not demonstrate the presence of linolenic acid in beef liver, kidney, pancreas, lung, or brain, but did find arachidonic acid (four double bonds) in fair amount in all. He makes no mention of linolic acid. Levene and Rolf (1926 and 1927) report analyses of lecithins from egg, brain, and liver, and state that all probably contain some linolenic acid and linolic acid.

Bloor's studies have shown wide variations in the types of lipins stored in different organs of an animal and in the same organ of different species of animal. Phospholipin distribution (lecithin and cephalin) shows least variation, within 30 per cent, while true fats show the greatest variation (from 200 to 500 per cent). It is a matter of great interest that Bloor has demonstrated (1927) that the concentration of phospholipins is greatest in those internal organs that have the most work to do and the most varied kinds of work to do, being highest in brain, liver, pancreas, kidney and lung, and least in muscle. Of all muscles, the concentration is greatest in the heart. When linolic and linolenic acids have been found in the body tissues of warm-blooded animals, they have been found in the phospholipin fractions. When they are found in the body fat (as in lard) it is probably as storage of excess eaten.

EFFECTS OF DIET ON DISTRIBUTION, CONCENTRATION, AND DEGREE OF UNSATURATION OF CERTAIN UNSATURATED FATTY ACIDS

McCollum, Halpin, and Drescher, in 1912, demonstrated that, although hens could synthesize egg yolk containing normal amounts of lecithin when restricted to a diet low in fat and free from lecithin, yet there was a marked change in the degree of unsaturation of the fatty acids found in the egg lecithin so produced, as indicated by differences in iodine value compared with values similarly obtained from egg lecithin produced by hens on a customary farm diet.

Ellis and co-workers (1925, 1926 a and b, and 1930), Anderson and Mendel (1928), Reed, Yamaguchi, Anderson, and Mendel (1930), Sinclair (1931), and Eckstein (1929) have all made extensive investigations of the effect of diet on the fatty acid deposited by the animal. The group at Yale have found, as has Ellis, that the total percentage of true fat in a given organ is influenced more by the size and sex of the animal than by the type of diet, but that the degree of saturation of the stored fat is

directly dependent upon diet, varying little with location of the fat. Sinclair (1931) stated that the degree of unsaturation of fatty acids of phospholipins of rats is a function of the degree of unsaturation of the fatty acids in their food. He analyzed the lipin content of the whole carcass, testing the effects of cocoanut oil, butter, lard, olive oil, cod liver oil, and linseed oil. Ellis (1931) proved that increasing the intake of cottonseed oil by pigs increased the linolic acid content of lard from 8.7 per cent to 28.2 per cent of the total fatty acids, the oleic acid percentage decreasing correspondingly from 50.4 to 32.5. Smith (1931—unpublished)[2] showed that cottonseed oil (which is believed to contain two forms of oleic acid—the common form in which the double bond is between the 9th and 10th carbon atoms, and an isomer in which the double bond is between the 12th and 13th carbon atoms) does, probably due to this peculiar oleic acid make-up, provide additional linolic acid (whose two double bonds occur at these locations).

We thus are provided with additional data emphasizing the constant presence of unsaturated fatty acids in phospholipins, and the constant percentage of phospholipins in all vital organs and tissues. We have also been given evidence of the effect of diet on the degree of unsaturation, not only of body fat, but, of far greater importance, on the degree of unsaturation of the fatty acids in phospholipins. If warm blooded animals cannot synthesize certain unsaturated fatty acids present in phospholipins, then they must be supplied in the food. Evidence is shown that long continued deprivation of these essential fatty acids affects growth, reproduction, water exchange and kidney function, and finally results in death. Butter, and butter or lard substitutes do not supply these fatty acids, linolic and linolenic, but one or the other, or both, are present in lard, vegetable oils, and cod liver oil.

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THE DOCTOR SEEKS THE AID OF THE DIETITIAN*

DWIGHT L. SISCOE, M.D.

I am addressing you as a practicing physician who wants to tell you something of his observation of dietitians and refresh your memory of the details which might properly be grouped under the phrase, "the art of dietetics." My remarks have primarily to do with the needs of the private patient rather than of the patient in the ward or out-patient department. It will be obvious to you that many of the things I have to say are not at all applicable to either the ward-patient or the out-patient.

Your job is to feed the patient. So far as I can discern, the dietetian is a super-person, who must be a cook, a scientist, an administrator, an economist, a psychologist, a teacher, an executive, a hotel steward and above all a diplomat. A dietitian may be able to be all of these things at once, but I am asking you to consider at present only your duty as the provider of food for the patient.

After all, the patient is the only excuse for the existence of the hospital. It sometimes seems to me that the patient is forgotten, or even becomes a monkey-wrench in the machinery. Do not get so interested in running your department, keeping the per capita cost down, teaching, placating the chef, satisfying the administration, and so forth, that you overlook the real reason for your presence in the hospital. Some of your difficulties undoubtedly are due to the doctors who fail properly to impress the administration with the importance of therapeutic dietetics, thereby fostering the tendency to allow your department to slip into the same category as other hospital departments, such as the housekeeping, engineering and plumbing. If the doctors took as much interest in therapeutic diets as they do in the operating room, the patient would undoubtedly fare better and greater specialization within your department would result.

The responsibility of satisfying the patient with food that he is able and willing to eat rests squarely upon the dietitian. As Elizabeth Hayward (1) says: "To fill diet therapy orders is a task; to train inexperienced and uninterested nurses is a greater task; and to cater to finicky and sick patients is the greatest task of all." The more ill the patient, the greater

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his right to the best from every department in the hospital. Frequently the dietitian assigned to special diets is the least experienced and sometimes the least capable. It seems unfortunate to me that the most experienced dietitian should be the chief of the department, giving practically her entire time to executive duties. The doctor considers you a food expert, and a consultant—even more so than others he might call in—since you actually execute the suggestions you make. His interest lies in what you can do for his patient, not whether you have a model department. He expects you to be clever enough to make even sawdust palatable, if you recommend it.

I have asked many physicians what they think of the dietitian and what she can do to help them. The opinions of the doctors consulted may be briefly summarized as follows:

1. The outstanding complaint was that the dietitian lacked personal contact with the patient and thereby failed to grasp his viewpoint. If the training course of every dietitian included three days in bed as a patient, it might prove to be one of the most illuminating experiences of her entire training.

2. The doctors unanimously agreed that on the whole dietitians lacked ability as cooks, or at least failed to see that the food was properly prepared. The doctor considers it fundamental that his patient be served simple ordinary foods, well seasoned and flavored, and hot. Several expressed the opinion that the average restaurant food far excelled hospital food. It seems obvious that we must have higher standards of food preparation and service in the hospital.

3. It was stated that you become too involved in routine and administrative duties and allow yourselves to become hemmed in by routine special diets such as "House," "Low Residue," "High Residue" and "High Vitamin," and fail to appreciate the needs of the individual patient. When the doctor writes an order for such a routine diet he would like to feel that your contact with the patient is close enough to enable you to make the adjustments indicated in each particular case. He would appreciate greater latitude of imagination and initiative on your part.

4. The lack of flexibility of the dietitian's organization met with considerable criticism. The doctors do not understand why their patients must wait twenty-four hours to have a diet changed just because the previous diet has been "posted" or "charted." He is thinking of the cost and benefit to his patient, rather than the convenience of the dietitian.

5. If the doctors are right, you are woefully failing to recognize the value of a psychological approach to the patient and are not properly considering the effect of the emotions on digestion. For instance, it was only recently that a surgeon came to me complaining bitterly that a patient, on whom he had expected to operate the next morning, had been given meat croquettes, creamed, cubed potatoes, vegetable salad and stewed prunes for supper the night before. The patient was a very nervous woman, in whom the fear and emotion preceding the operation would certainly stop all digestion. From previous unpleasant experience, the surgeon was so certain that no digestion would occur and that all of those foods would be found in her stomach in the morning that he postponed the operation.

6. Every doctor likes to feel that his private patients will be carefully instructed in their diets before leaving the hospital. A greater effort seems to be made by the dietitian to do this for the ward patient than for the private patient.

After giving the doctors a chance to criticise the dietitian, it seemed only fair that I should find out what the dietitians thought of the doctor. I talked with many, some who knew me well enough to say exactly what they thought and others who felt called upon to be more cautious and discreet. My own interpretation of your several criticisms is as follows:

1. In the first place, the average physician is too busy or too ignorant, or both, properly to supervise diets. His diet consciousness is poor. He has almost no knowledge of the results of dietary treatment and is interested only to the degree that he knows dietetics and nutrition.

2. The doctor fails to encourage suggestions from the dietitian, is often authoritative and obstinate, resents interference and will not admit his ignorance.

3. Frequently, a doctor gets carried away by food fads because he lacks adequate knowledge for discriminating judgment.

4. He pampers his patients and will make any adjustment to keep the patient happy, even though in doing so he fails to coöperate with the dietitian, or perhaps even puts her in the wrong light.

5. The doctor fails to impress the hospital administration with the importance of therapeutic diets.

6. Some doctors feel that the dietitian is running a short-order restaurant and should supply every whim of his patient immediately.

Now, this is quite a bombardment for each of us and probably will arouse considerable emotion. I must admit that there is some ground for all of these criticisms of the doctors and would like to explain many

things to you, but since you have no chance to explain your side of the argument and our emotions really are aroused, let us consider some of the effects of emotion on digestion.

I think every dietitian should be familiar with at least the first chapter of Cannon's book, "Bodily Changes in Pain, Hunger, Fear and Rage" (2). You need no illustration of the effect of emotions upon digestion, for such self-explanatory phrases as "sickening pain," "sick headache" and "it makes my mouth water" are adequate. You all know the purging effect of fear or anxiety and how frequently vomiting follows an hysterical outburst.

Cannon shows clearly that digestion is started by the pleasurable sight, taste and smell of food, and that it is retarded by pain, fear, worry, anger, anxiety and disgust. He even states,

> "The degree of daintiness with which nourishment is served, the little attention to esthetic details—the arrangement of the dishes, the small portions of food, the flower beside the plate—all may help to render food pleasing to the eye and savory to the nostrils and may be the deciding factors in determining whether the restoration of strength is to begin or not."

That excitement retards the flow of saliva was so well known in India that it was used as a means of discovering criminals. "The Ordeal of Rice," you will recall, required all suspected persons to chew dry rice. At the end of a given period, this was expectorated upon the sacred fig leaf and if the rice was still dry, the person was considered guilty, because they knew that fear stopped all salivary secretion. The dry mouth of the anxious and fearful public speaker is another illustration.

Alvarez (3) cites many amusing and instructive illustrations of the effect of emotions upon salivary, gastric and intestinal digestion, for instance, the man with the fistula of Stenson's duct, which made it impossible for him to talk about food, or to view food in store windows, without having a trickle of saliva run down his cheek. Although we know some of the effects of emotion upon salivary, gastric and intestinal digestion, who knows the effect of emotion upon the digestive function of the liver, pancreas and other glands?

The hospital itself greatly handicaps favorable emotion. In the first place, the patient lacks the relaxing, favorable effect of good company, conviviality and contentment, and is beset with fear and anxiety. Certainly, here all of your "art" is necessary and offers a real challenge to you. The depressing influence of morphine and other drugs clearly complicates your problem. The hurry and commotion, and sometimes the

thoughtlessness of the doctor and nurse make the patient feel more alone than ever, thus increasing his anxiety and thereby depressing his appetite.

How can you stimulate the action of secretogogues? One way would be to make your trays look as appetizing as some of the advertisements which make your mouth water. Can you look at the street car placards of "Aunt Jemima's" pancakes, the bran muffins or various fruit salads, without feeling hungry? Can you do more with color? Colored tray cloths and napkins do hide battered, unsightly trays, and as Cannon says, the judicious use of a flower may be the determining factor. Can you make odors work more for you? We can not deny their importance. Whoever felt hungry in the presence of hydrogen sulphid gas? Have you ever failed to feel hungry while sniffing the aroma of bacon and coffee?

You need the coöperation of the nurse, and I realize that this is one of your greatest problems. So far as I have been able to understand the situation, the difficulties between the dietitian and the nurse are based primarily on the failure of each group to visualize and evaluate the purposes and efforts of the other. The very organization of the hospital makes it easy for each group to shift the responsibility. If the dietitian could prepare, serve and deliver all the food, it would definitely fix the responsibility; but the financial demands of such an organization render it impossible. Furthermore, you have the education of the nurse to consider and your responsibility in this respect is just as great as that of the department of surgery and medicine. She depends upon you for dietetic instruction. I think that you should make every effort to train her to accept diet responsibilities during her diet-kitchen course and at the same time instill in her your ideals of service to the patient. Unfortunately, some training schools seem to have fostered the belief that you are trying to usurp the nurses' job. Show her that you want to help her get results with her patient and above all do not exploit her. I have in mind one pupil nurse who, during her ten-day period in the diet kitchen, spent three days polishing silver. Encourage the nurses to report diet complaints to you and do not criticize them for merely transmitting the order of some bungling doctor. Less militarism, more coöperation and greater blending of the two departments seems necessary to me. Tact, earnestness, sincerity, knowledge of each other's problems and subjugation of personal difficulties to the welfare of the patient will iron out practically all of the wrinkles.

How much effort do you make to train the nurse in the principles of the psychology of foods? One could point out the damage done by hurry, carelessness and neglect, teach her the importance of having everything ready in the patient's room before taking in the tray, and emphasize the value of psychologically preparing him for food. The effects of emotion upon digestion could be taken up in considerable detail. How much time do you spend in teaching the nurse to be a good cook? From the doctor's viewpoint you are looked upon as knowing all of the tricks of making food tasty and palatable, and he considers this one of the most essential things in dietetics.

There must be coöperation between the patient, the doctor, the nurse and the dietitian. Not very long ago, a diabetic patient entered the hospital to have a cataract removed. She was a trained diabetic, taking insulin three times daily, had long been on the same diet and had maintained a satisfactory diabetic course. Two days after the operation, this patient was given insulin at noon, as usual. She did not eat all of the food on the tray, although her doctor had cautioned her to do so. The nurse noted that not all of the food had been eaten, reported it to the head nurse, who in turn reported it to the dietitian; but by the time all this hospital procedure had unravelled, the patient had had a hypoglycemic convulsion which resulted in hemorrhage in the operated eye, making enucleation of the eye necessary. This unfortunate episode illustrates the importance of coöperation. The patient failed to do her part by not eating all the food, her only excuse being that she did not like it. The doctor failed by not sufficiently impressing the patient and nurse with the importance of maintaining the daily carbohydrate intake. The nurse failed by not seeing that the carbohydrate was replaced immediately. Of course, one can not say that the dietitian was responsible, but this accident might have been prevented had the food been more palatable or had the dietitian been in closer contact with that patient.

I would like to emphasize again that a balanced, scientifically correct diet is worthless if the patient does not eat it. Here lies the opportunity for the art of dietetics. Proper seasoning, that "home cooked" taste, that "French chef" touch, and the psychological value of daintiness, of color, of the flower—in brief, the combination which "makes the mouth water." I urge you not to become blinded to the essentials of diet by interest in relatively unimportant things, such as the inorganic salt or vitamin content, or the decimal quantitation of carbohydrate, protein and fat. All of these things have value and are sometimes of great importance, but they do not compare in any way with the necessity of getting

the patient to eat common, simple foods. Perhaps it would be just as well to remember that we might even go two or three weeks—the average hospital sojourn—without vitamins. How often do you find scurvy or beriberi in the hospital, especially among private patients? To report quantities of carbohydrate, protein and fat in fractional amounts seems perfectly absurd when we all know that there is error of at least five to ten per cent in published tables of food analyses.

Patients with diabetes, obesity, and other metabolic diseases are facing reduction changes in their food habits which tax your inventive genius, tact and patience. You can not make it possible for him to eat what his disease renders impossible, but you can help a great deal by preparing simple, palatable food served hot and appetizingly. You can use imagination and initiative in securing variety for him. You can help him mobilize his psychic forces by showing him that you are there to help with his food problem, that he is not the only one who has had to face such food limitations, that others have done well on similar restrictions, or even that others are still more unfortunate than he is. One of the happiest men I have ever met was a college professor, a diabetic, who before the days of insulin, lived on a diet that contained only 15 grams of carbohydrate daily. He told me that after the first few months of readjustment, during which he struggled against accepting the fact that he could not achieve certain ambitions, he finally reached the stage where he lived each day to his fullest capacity without struggling to reach unattainable goals and there found greater happiness than he had ever known.

Would a personal dietetic history form for the private patient help? I know that such forms are used in various out-patient departments, but I have never seen one used with private patients. It seems to me that every special diet case deserves a careful dietetic history. This form should contain such data as his usual home diet, his likes and dislikes, special instructions about preparing his food and various data bearing on the individual's psychological reactions, such as his sensitiveness, interest, coöperation and emotional state. If such a form could be kept where the trays are made up, it would certainly prevent many errors.

The doctor depends upon you to handle his dietetic problems. He may go to several hospitals where the rules, customs and methods vary, the result being that he is often vexed and confused, and always perplexed about how to get what he wants for his patients. He looks to you longingly and full of hope that you can accomplish it for him. Very few

doctors know anything about dietetic details and many do not particularly care to. They consider you the food expert and will defer to you and coöperate with you, if you "deliver the goods." The surgeon knows that his cholecystectomy patient should not have baked beans and cabbage, and a salad of lettuce, cold peas and beans with mayonnaise; but if you push him for much further detail, he will probably rush off in a hurry, saying, "Give him some soup and mashed potatoes." He depends upon you to know what a cholecystectomy patient should eat. And after all, why shouldn't he? You are the expert and it is your job. In my opinion, the dietitian with the tact, knowledge and personality to handle such a situation, will never want for a job.

In summary, the doctor wants his patient comfortable, contented and pleased with the food, and he holds you responsible. He expects the dietitian to have knowledge of scientific dietetics, but considers it more important that she know how to choose and prepare simple, nutritious foods and serve them in such manner that they appear tempting, even to a sick person.

He depends upon you to display initiative, imagination and resourcefulness in adjusting his orders to the patient's likes, dislikes and whims. When one of his pampered women patients exclaims that she "simply can't eat eggs," he depends upon you to introduce eggs via French toast, custards, cake or any other way your art teaches you that it can be done. He hates the word "can't." Too often he feels that you are merely automatons dealing out set, inflexible diets for each specific diagnosis, and that you have hedged yourself in with hospital rules, regulations and prejudices to such a degree that imagination and resourcefulness have been swamped. He would like to feel that you establish contact with his patient in such a way that confidence develops and the patient feels that you are his friend, ready to help him with his food. He needs, and expects you to keep some sort of food chart which will show him quickly and accurately what food is *consumed* (not served). For instance, the diabetic chart in diabetes, the caloric chart in obesity, or the protein chart in nephritis. He is not interested in decimal values of carbohydrate. He feels that such stilted figures indicate lack of appreciation of truthful food values and blind following of rules.

The doctor would like to feel that you are constantly on the alert to prevent errors. Only a few days ago I was called to see a patient, eight days following a pelvic operation, in whom everything had been going smoothly until the surgeon had said to the nurse, "Let her eat." You will undoubtedly be surprised to learn that she was allowed to eat oysters

and dandelions, but you will be shocked to hear that the severe digestive upset which followed caused collapse complete enough to result in a frantic call for the priest and the conviction on the part of the surgeon that an embolism had occurred.

The doctor likes to feel that the dietitian will keep in touch with him, either by personal conferences, a note left on the patient's chart, or by telephone. He wants to look upon the dietitian as a real and interested friend to his patient in the question of food.

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NUTRITION IN THE CURRICULUM OF A SCHOOL OF NURSING*

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Because of the importance of certain nutritional problems in the present day health program, the health worker should be allowed ample opportunity for adequate preparation to meet the demands which to an increasing degree are bound to be made upon her.

In the field of public health the graduate nurse is usually the one chosen for this task. She is the one who directs the selection of a dietary which should fulfill as nearly as possible the needs of those for whom it is planned.

Total calories, protein, minerals and vitamins need to be adjusted under the varying conditions of race, age, and economic level. Problems arising from situations of the most widely varying natures face the nurse upon graduation. The one who goes into the public schools meeting growing children who are extremely adaptable to new ideas and flexible in habit formation faces a decidedly different problem from that of the worker in an industrial center. This nurse is the one who must understand the needs of adults, many of whom are from countries older than ours. These older countries have their racial diet which has been established through long years of economic restriction or family custom. They are the people who find it extremely difficult to discard the habits of a lifetime and fall in line with the precepts of the newer country. The problem is further complicated by the constantly changing nature of the subject matter with which the nurse must be familiar. Research in biochemistry is constantly revealing new facts and changing the interpretation of the old. Facts, emphasis and technique are constantly changing and the really valuable public health nurse can never cease to be a student of nutrition. At present there are very few courses offered the graduate nurse which adequately prepare her for such a wide variety of contacts. Of necessity she must depend in most cases upon the elementary courses offered in her preparatory training in normal nutrition and diet therapy.

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Because of this very great need for continued interest after graduation, a course may be judged to be successful in proportion as it creates an interest in future reading and study.

Until the teaching field is so widened that the graduate nurse can obtain additional instruction in her own particular problems at not too great a cost to her, the courses which are offered during her undergraduate days assume a position of extreme importance.

IMPROVE THE PERSONAL HEALTH OF THE NURSE

If the courses in elementary nutrition and diet therapy are to be effective, they must first of all improve the personal health of the nurse. There should be a distinct improvement in her diet with a corresponding increase in general physical well being.

An interesting study was made in 1929 in Syracuse, New York, of the diet of the nurses in the Bureau of Public Health. Miss Emily Ketcham (1), Supervisor of Nutrition of the Syracuse Health Department, reports the following:

> "The idea of making the study was threefold; first, to see how near standard requirements such a group of health workers would come when selecting their own food; second, to let each individual nurse find out just how near the standard requirement her own daily food selection would come, and to show her just how her own diet could be improved; third, to make the study serve as a basis for teaching why certain standards of diet have been set up."

The diets of thirty-four nurses from the nursing bureau were examined. The study included not only the examination of typical daily meals, but noted also food eaten between meals and any other irregularities.

Analyses were made by the nutritionist for types of food and translated into calories. The food materials were classified in six groups, namely, milk; vegetables and fruits; meat, fish and eggs; cereals and breads; fats and oils; and sugar.

The analyses showed that the diets of those nurses who were within the limits of normal weight were seldom deficient in total calories. About half of the diets of the nurses who were below the 10 per cent limit of normal weight for height were deficient in total calories. However, the majority of the diets in both these groups were strikingly deficient in certain of the above classifications of food materials. All of the diets of the nurses in the overweight food group were deficient in vegetables and fruits while all but one were deficient in milk.

If this is characteristic of the dietary practices of the nurses in the

various Bureaus of Public Health throughout the United States, the need for more effective undergraduate instruction is strikingly apparent.

Variations in the student's weight during her course reveal some interesting data and are indications to a certain extent of her ability to carry on her work efficiently.

In the School of Nursing, Western Reserve University, weight charts have been kept over the entire period from entrance in the school to graduation. Weights have been taken at monthly intervals. The weights of 146 student nurses for one year were averaged after excluding from consideration all possible glandular cases of extreme overweight and underweight. The excess in percentage of actual gain over the averaged weight is given below. The following report begins in January and figures for each month are given for the twelve-month period.

Average monthly increase in weight of 146 students at the School of Nursing expressed in percentage terms:

January	0	July	0.90
February	2.23	August	1.12
March	2.38	September	1.03
April	2.45	October	2.53
May	2.62	November	2.60
June	2.80	December	2.31

As may be observed, there was a small general increase in weight over the admission weights in January. This general increase was maintained over the period of the entire year with the exception of the months of July, August and September. Of the 146 individual weights tabulated, 60 were 5 per cent or more overweight and 40 were 5 per cent or more underweight at the time of admission to the school. Of the 40 underweight students, 33 gained with an average gain of 6.5 per cent in one year. Only 5 of the 40 lost with an average of 3.3 per cent, and 2 remained stationary. Of the 60 overweight students, only 19 lost with an average of 3.5 per cent. Thirty-six of the 60 gained with an average gain of 4.8 per cent and 5 remained stationary.

In spite of the rather crowded curriculum of the School of Nursing, a situation which is typical of most university schools, the record shows a tendency to increase in weight. The regularity of their lives and the well balanced menus served probably will account for the gain in weight for a majority of both the underweight and overweight students. It has not been possible to serve an entirely separate reducing menu because the dormitory of the School of Nursing has only recently been in operation, and also because of large number of overweight students. Sub-

stitutions are occasionally made, however, and rich dressings and desserts have been omitted.

APPRECIATION OF THE IMPORTANCE OF ADEQUATE NUTRITION

In addition to improving the personal health of the nurse, the course, in order to be effective, should give her a new attitude toward her work. A sense of the fundamental importance of nutrition in any health problem is essential. Nicety of technique and a fund of scientific facts may be acquired, but without an earnest desire to utilize fully this training it becomes an acquisition of no real value.

Florence K. Wilson, R. N. (2) has published an article called "Problems in Medical Care." This article included a list of the difficulties involved in nursing care encountered by the student nurses. In thirty-five gastric ulcer cases and thirteen typhoid cases, the majority of students listed as their first problem—how to satisfy the patient with the diet. Among all the needs of those patients to whom they were administering, diet was placed first. They seemed to realize the importance of knowing what the patient should have, how it should be prepared, and how to satisfy the patient with the food. In fact, they recognized the need for scientific knowledge as a basis for selection of the diet, technical skill in providing it and tact and diplomacy in satisfying the patient.

NUTRITION AS A SEPARATE COURSE IN THE SCHOOL OF NURSING CURRICULUM

Nutrition courses offered today in the many hospitals and schools of nursing vary and the content in each course is dependent, naturally, upon the length of time devoted to it. The subcommittee of the educational section of the American Dietetic Association has prepared three separate outlines as a basis for courses varying in number of hours. However, before considering these recent outlines I should like to discuss for a moment the changes which have taken place in the nutrition program as schools of nursing have developed since the days of Florence Nightingale.

Florence Nightingale (3), in her little book "Notes on Nursing," contributes some of the earliest information on diets for the sick. Miss Nightingale says,

"Careful observation of the sick is the only clue to the best dietary. Chemistry has as yet afforded little insight into the dietary of the sick. All that Chemistry can tell us is the amount of carboniferous and nitrogenous elements

discoverable in different dietetic articles. It has given us lists of dietetic substances, arranged in the order of their richness in one or other of these principles but that is all. No doubt in this as in other things, nature has very definite rules for her guidance but these rules can only be ascertained by the most careful observation at the bedside. She teaches us there that living Chemistry, the Chemistry of reparation, is something different from the Chemistry of the laboratory. To watch for the opinions which the patient's stomach gives rather than to read analyses of foods is the business of all those who have to settle what the patient is to eat. 'Let experience not theory decide upon this as upon all other things'."

In a book by Sara E. Parsons (4), giving the history of the Massachusetts General Hospital, we find the gradual development in interest in nutrition which was more or less general throughout the country beginning about 1873. The early organization of the dietary department and the conditions under which nurses worked are suggested by the following quotation which Miss Parsons makes. She quotes from the diary of a student nurse in the hospital at that time.

"Patients, no matter what nationality or what station in life, reposed on dainty dimity, curtained beds, and used solid silver spoons while the nurses after being on duty for sixteen hours, were shut up in little boxes of rooms, between two wards and sipped their Souchong, or whatever it might have been, from pewter teaspoons and drank their ice water, when allowed that luxury, from pewter tumblers. The assistant nurses went to their breakfasts at six o'clock after working in the ward an hour. They then prepared breakfasts for their patients, carrying them on heavy wooden trays to their patient's rooms."

The first formal cooking lessons for nurses in 1874 were due to the desire of the pupils and their own initiative. They asked for "sick cookery lessons" at the same time that they asked for more direct teaching on the wards, using a thermometer. They had been receiving some instruction in making "good stuff to eat," as they said, but not in dietetics.

In May, 1875, arrangements were made for six cooking lessons consisting of two hours each. Very little subject content was included, but good, practical lessons were given. This was at the time that it was first proposed that the nurses be given a distinctive uniform.

In the record of 1888, among the lists of the lectures and subjects offered in the nursing course, Dr. George Garland was responsible for the course described as follows: "The physiology of digestion and the discussion of the preparation and methods of serving certain various foods."

Lectures on the chemistry of cooking were started in 1892. The special diet kitchen was opened in 1902 with a Pratt Institute graduate in charge. Eleven hours of instruction in principles of cooking were given each week to the two pupils on duty in the diet kitchen. By 1921, the curriculum included sixteen hours of lectures and thirty-two hours of laboratory, a total of forty-eight hours, taught by the dietitian.

At the present time in most schools of nursing, a total of forty-five hours, including fifteen hours of lecture and thirty hours of laboratory, constitutes the elementary course in nutrition. In addition, the course in diet therapy usually includes at least fifteen hours of lectures with a varying number of hours in the special diet kitchen.

Since an understanding of the subject of nutrition is dependent upon a minimum background of physiology, organic and inorganic chemistry and bacteriology, its place in the sequence of subjects during the first year of the course in nursing should not be considered too lightly. A careful investigation of the curricula of some of the most successful schools of nursing discloses the fact that nutrition is included in the first semester's work of the first year parallel with the courses in bacteriology, chemistry and physiology. An exception to this is the trimester yearly system at Vanderbilt University, Nashville, Tennessee. There the plan permits nutrition to be given during the second trimester of the first year, following the other basic courses given in the first trimester. Such a subject as metabolism can no doubt be much more intelligently dealt with when nutrition follows the other sciences. If the subject is worthy of serious attention in the curriculum of a school of nursing it should be given its proper position in the sequence of courses. It is well nigh imperative to the study of digestion, the fate of foodstuffs in metabolism and acid-base balance, in short any study of the adequate diet under normal conditions and at any age, that the student bring adequate preparation. Experience with a properly planned sequence strengthens the conviction that an adequate course in nutrition presupposes an adequate preparation in the basic sciences.

STANDARDIZED OUTLINES OF COURSES IN DIETETICS FOR STUDENT NURSES

The present standardized outlines of courses in dietetics for student nurses were published in 1930 by the American Dietetic Association. They include outlines for the teaching of normal nutrition and diet therapy. The outlines differ according to the number of hours allotted to the course. They are respectively the forty-five-hour, the sixty-hour and the ninety-hour plans. It is expected that they will be revised every

few years in order to include all the recent developments in the field of nutrition.

The teacher of nutrition in a school of nursing is warranted in feeling much gratification in the knowledge that there is some standard accepable to the American Dietetic Association which she may use as a measure of this work accomplished in both the lecture hours and laboratory periods of the two courses offered by her.

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ADEQUATE DIETARIES FOR SORORITIES AND FRATERNITIES*

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Sororities and fraternities, those organizations indigenous to American colleges and Universities, are usually given marked attention in any general presentation of factors affecting the student life of our time. Most frequently such consideration focuses on the social aspects of the group life, covering its effect upon the individual student and upon the student body as a whole, and including those problems growing out of the interrelation of the groups.

The responsibility for wise control of the social forces and activities of the groups is usually assumed by the school, and some provision for meeting it is made through the offices of the Dean of Women, the Dean of Men, and through the house mothers selected for their social adequacy and experiences and stationed in the houses.

This common acceptance by the school of the responsibility for maintaining social practises is often, if not usually, paralleled by a failure on its part to recognize and meet its responsibility for maintaining healthful living conditions, and proper diet for these same student groups.

A casual scrutiny shows that, in general, the planning of the dietary and the selection and supervision of the preparation of the food is done by persons without nutritional training. The small number in the sorority or fraternity makes the problem of furnishing economical and satisfactory meals difficult enough to be interesting and zestful to the trained dietitian, and practically dooms the untrained inexperienced student to failure, either financially, dietetically, or both. The group may be unaware of the dietary deficiencies, or if conscious of ineffectiveness, is unable, because of limited time, crowding of other interests, lack of background or native ability, to cope with the situation. Group inertia, coupled with the failure of the college administration to assume helpful direction, have resulted in unfortunate practises. The inadequacies of these dietaries is clearly shown in the studies made by Grundmeier (1) of the dietaries in twenty sorority and fraternity houses man-

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aged without trained dietitians. These studies indicated that th ugh the protein was sufficient and the energy probably adequate in all the groups, the calcium and phosphorus was inadequate in seventy per cent,

TABLE 1

Distribution of expenditures

	GROUP A		GROUP B		GROUP C		AVERAGE PER CENT
	Cost per ~~month~~ year	Per cent	Cost per ~~month~~ year	Per cent	Cost per ~~month~~ year	Per cent	
Meat, fish, fowl	565.90	22.7	382.26	21.7	414.24	26.0	23.5
Eggs	112.15	4.5	93.62	5.3	40.92	2.6	4.1
Milk, cream, cheese and ice cream	365.06	14.6	310.32	17.7	206.68	12.9	15.0
Butter	193.65	7.8	104.97	5.9	142.18	8.9	7.5
Fats other than butter	27.80	1.1	31.50	1.8	35.05	2.2	1.7
Grain products	203.20	8.2	123.40	7.1	125.80	7.9	7.7
Sugar, molasses	56.95	2.3	45.70	2.6	40.60	2.6	2.5
Fresh vegetables and fruits	372.99	14.9	295.31	16.8	289.48	18.1	16.6
Canned vegetables and fruits	299.41	12.0	208.26	11.8	194.81	12.2	12.0
Nuts	15.75	0.6	8.40	0.5	8.40	0.5	0.5
Potatoes	66.07	2.6	40.83	2.3	57.19	3.6	2.8
Miscellaneous	209.32	8.4	111.32	6.3	36.72	2.3	5.9

TABLE 2

Comparisons of percentage of total food expenditures

	PER CENT OF TOTAL COST OF FOOD		
	Groups A, B, C	College group, Kansas	College group, Washington
Meat, fish, fowl	23.5	21.0	23.3
Eggs	4.1	5.1	4.0
Milk, cream, ice cream and Cheese*	15.0	11.0	12.9
	*	1.1	1.4
Butter, other fats	9.2	11.6	13.3
Grain products	7.7	12.6	9.4
Sugar, etc	2.5	7.0	4.2
Vegetables and fruits	31.4	24.2	24.8
Nuts	0.5	0.7	0.7
Miscellaneous	5.9	5.8	5.8

* Cheese is included with milk, cream and ice cream.

and the iron in fifty to sixty per cent. There was also a marked deficiency in vitamins. In fact, though the average food cost of 35.6 cents was almost twice as high, the food served these groups was less adequate than that furnished the inmates of the state penitentiary.

A study reported by Raitt (2) at the University of Washington on twelve organized houses there shows a similar situation. Protein was found to be adequate in each case, while the calcium was insufficient in half the groups and the iron below standard in all but one, even though the average cost per day was 42 cents.

Accepting as existing the relationship between proper food and effective work, and facing these data, the administration of the Kansas State college considered the 923 students fed in its thirty-four organization groups of the campus. The need of intelligent supervision of the food units in these houses seemed evident to both the administration and to the sponsors of the various organizations.

TABLE 3

Summary including costs and comparison of dietaries with Sherman's standard

PER CAPITA PER DAY	CALORIES	PROTEIN	CALCIUM	PHOSPHORUS	IRON	COST
Group A	2,322	68.1	0.675	1.19	0.014	40.2
Group B	2,745	81.9	0.863	1.46	0.016	45.6
Group C	3,415	99.4	0.838	1.70	0.020	52.6
Average	2,827	83.1	0.792	1.45	0.0186	46.1
Sherman's standard	3,000	67.0	0.675	1.32	0.015	
PER 3,000 CALORIES						
Group A		87.9	0.870	1.53	0.018	51.8
Group B		89.4	0.942	1.60	0.018	49.5
Group C		87.2	0.735	1.50	0.018	45.9
Average	3,000	88.2	0.849	1.54	0.018	49.0

To meet this need a plan was formulated whereby the Department of Institutional Economics made available the services of a food director who would plan balanced, palatable meals, purchase food supplies, give limited supervision to its preparation and keep an accurate record of the food costs for coöperating groups.

A minimum charge of ten dollars a month was made to each coöperating organization, to defray in part the cost of operation of the plan. The first year the participating groups were limited to three for obvious reasons. The data collected furnished the department a basis for a dietary and economic study made by Ethel Trump as a thesis in partial fulfillment of the requirements for the master's degree.

In the plan accepted by the coöperating groups, the food director was

to plan the meals, give limited supervision in the preparation of the food, do the buying, and forward to the groups corrected bills with summary statement each month. Each group was to coöperate by making prompt monthly settlement to the firms with whom orders were placed, and was to give earnest assistance in the carrying out of the project.

The menu was planned to consider the whole day as a unit, rather than the individual meal. In order that desirable food requirements could be met, the menu for each meal followed a general type. The breakfast menu consisted of a fruit, cereal, one hot dish in addition to the cereal, and beverage. A salad, dessert, and beverage were always included in the lunch menu in addition to a soup or made dish. The dinner menu always included a meat, potato, one other vegetable, salad, dessert, and beverage. In planning the menus the aesthetic value was considered quite as important as the food served.

The project was discussed with managers of local wholesale firms. Their interest was manifested through their willingness to extend credit to the three coöperating groups and make daily delivery of all food if necessary. Wholesale prices could be obtained on meat, staple products, fresh fruits, vegetables, poultry, and eggs. Meat was purchased in cuts from a local packing company and deliveries were made daily. One-half case of eggs was purchased at a time to insure freshness. Fresh fruits and vegetables were delivered daily. Where possible, and when storage room permitted, cases or crates of fresh fruits and vegetables were divided among the houses and advantage thus taken of the lower wholesale price. Staple products were purchased in large quantities for each group. The orders for milk, cream, and butter were placed weekly, but deliveries were made daily. Each time the food director visited a house, supplies on hand were checked in order to examine the quality of the food delivered, to see that waste was not occurring through careless preparation and storing of food, and to check the adequacy of the amounts purchased.

At the beginning of the study an inventory was taken of the supplies on hand at each house. The amount of each food, the size of the container, the unit cost, and the totals were recorded for each article of food. Delivery tickets were collected from each house by the food director once a week. The prices and amount of food delivered were checked with the original order, and these purchases were entered in the purchase book. The food consumed was calculated to be the difference between the inventory at the beginning of the month plus the monthly purchases, and the final inventory.

This study shows that it is possible for a college to meet its obligation

for maintaining healthful dietaries in organized houses without an increase in cost by providing an adequately trained personnel to direct the purchasing, planning, and preparation of the food in the coöperating houses.

By bringing to the problem an understanding of the daily food requirement of the group to be fed, the advantages of large quantity purchasing, and the avoidance of unnecessary waste, the trained food director is able to maintain at a minimum per capita cost an adequate dietary, appetizing and attractive to the students.

On the basis of the success of this preliminary study the Kansas State college is continuing its food director services, increasing each year the number of groups served.

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DEVELOPING THE DIETARY DEPARTMENT IN A NEW ZEALAND HOSPITAL

ELEANOR WELLS

Most people think of New Zealand as away off in the South Seas somewhere close to Australia. As a matter of fact, there are at least twelve hundred miles between New Zealand and Australia, a four-day trip by boat. New Zealand is southeast of Australia, temperate, not tropical in climate, with a very mild winter and a very cool summer. It consists of two small islands about the length of the Western coast of the United States. At its narrowest point one can travel in twelve hours from coast to coast; it is practically a twenty-four hour trip at its widest point. One of the rather interesting things about the country is its utter compactness. One goes from the seacoast to the mountains in the same day, and one passes on the way through verdant valleys and the irrigation section, to the mountain lakes, and then to mountains and their glaciers. The islands were supposed to have come up out of the sea following subterranean volcanic disturbances. The North Island is typically volcanic, with several exceedingly beautiful snowcapped volcanoes. Mt. Ngarohoe still smokes, but there has been no eruption since Mt. Tarawera, in the heart of the thermal regions, buried two native villages in 1886, and covered the famous pink and white Terraces, formed from silicate salts. The South Island is glacial in origin, its mountains vying with the Swiss Alps in height and beauty. They form an extended ridge down the west coast, and are high enough to cut the clouds which come with prevailing winds from the west. This makes a very wet west coast, of densely wooded growth, semi-tropical in type, and an arid east coast, adapted to sheep raising, one of the biggest industries of the country.

New Zealand has not yet reached its century mark. It was settled in 1840 by English and Scotch settlers who found there a native Polynesian people who were cannibalistic at the time, but who, within one generaton, have become definitely Europeanized. This fact rather bears out the statement of one of the leading anthropologists that it was more a question of necessity than desire which made them consume their fellow men. There was very little food for the native to eat before the European

arrived. There were no native animals. There were native birds which have become scarce, due in part to the fact that they were used so extensively for food and also because of the introduction of imported animals which have made depredations on them. The native birds never learned how to protect themselves. That was the situation with the early colonists. In one generation New Zealand has grown up to a self-supporting Dominion with advanced social and legislative laws—the eight-hour law, the contract award, mothers' pensions, widows' pensions, and superannuations for all people working in government positions. When I use the term government positions, I am speaking very inclusively, since railroads, telegraph systems, universities, schools and hospitals are among the institutions included in government control.

Otago University in Dunedin was the first to be founded in the country, and it is the first university in the British Empire to have conferred a degree upon a woman. This little university has a very good Home Science Department, and like the one at Toronto University, it was a bequest. It began in a very small way. The students started by learning their chemistry in the University and going to a technical school for their cookery. The Department had a little corrugated shed of its own. It has since developed quite an up-to-date four-year course granting a bachelor of science degree which is recognized at Columbia University, New York City. Within the past two or three years, it has given the degree of master of science.

It was through the University that I was first asked to consider the position of dietitian in the Dunedin Hospital, chiefly because they were interested in developing another branch of professional work for their graduates, and also because the dietary conditions in the hospital were rather poor, although the nursing conditions were excellent.

Otago University has a medical school, a dental school and a nursing department. The dietary, I think, was the poorest in the country. Of the hospital itself, the administrative section was in an old building taken over from their first Exhibition. It had been an old market and was still standing as the administrative section. Off in the back was an old kitchen almost as old as the colony itself.

All hospitals are, in part, subsidized from Wellington, the capital, and to that extent they are under the direction of the government. They are supported by a direct tax on the ratepayers. There is a definite hospital tax as the hospital is entirely for public patients. Fees are at the rate of three guineas per week. The Board was elected popularly every two years, therefore anyone who wanted the office and could get

the requisite number of votes was on the Hospital Board. About six months before elections nothing happened in the hospital for fear it might offend the voters. During that period I used to go down to the kitchen and find "Vote for so and so" posted up over the potato machine or somewhere else for the benefit of the voters among the kitchen help.

A new kitchen was sorely needed when I arrived and we started in on plans at once. In the meantime, we tried to get on as best we could with the old kitchen, and one of the first things was to establish hygiene. The kitchen had been run by a steward who had been a porter. He was very faithful, but his knowledge was naturally limited. We began by screening off the place from flies. There was no refrigeration, and we had to depend entirely upon the circulation of air through what are termed "safes." Just as an experiment, one piece of ham was sent to the Medical School for a culture. Besides the various bacilli which are found in unhygienic localities, we also grew a culture of the pneumococcus bacillus.

In planning the new hospital kitchen, there were many problems. There is a law in New Zealand, carried over from an old English law, that all drains must be on the outside wall. Many years ago in England people were not particularly careful what they did with their drains, therefore the need for their easy inspection. Living conditions and habits have changed, but this law is still in existence. Can you appreciate what it meant to try to plan a labor-saving kitchen and at the same time have all the drains on, or just a few feet from the outside wall? All stock pots and steamers must therefore be under the windows. Everything of this sort had to be imported. Every metal except gold that is used in New Zealand must be imported, so that you have not only the price of transportation but a high duty as well, which added materially to the cost.

In my little diet class room, I was able to place sinks away from the walls by special dispensation, but that happened because the Home Science Department had done it first and established a precedent. Their students were supposed to have learned how to use drains wisely.

In studying the dietary problems I found that the market supplies were exceedingly limited because of the high cost and difficulties of transportation. Many vegetables grew only on the North Island, and we depended for citrous fruits on the South Sea Islands. If there was a storm and the boat did not touch at the islands, we went without citrous fruits for the next month.

I found in analyzing the dietary that it contained about fifty per cent breads and cereals. There was an allowance of a loaf of bread to a

patient per day. Bread and milk was the first course of every "tea" (supper). Fruits and vegetables amounted to eight per cent of the dietary. As you know, fifteen per cent is considered the minimum standard. It really amounted to only eight per cent *vegetables*, because there was no fruit whatever. I was able to increase the dietary to fifteen per cent by adding fruits and then gradually increasing by the introduction of a greater amount of vegetables. By the end of my period of service we were serving a vegetable plate as a supplementary, and definitely increasing the amount of vegetable used in toto, at the same time decreasing the breads and cereals to thirty per cent. I felt that we had borne out Dr. Sherman's statement that a high cereal content is at the expense of adequate fruit and vegetables.

We had our own garden and our own farmer. He had grown and marketed lettuce for years. It had never once come into the hospital. The first time I put it on the menu there was an immediate cry from the doctors that there might be danger of the patients' developing *hydatid* disease. This is a condition known to sheep raising countries. I investigated the garden and found there was a high fence around it; in other words, it was dog-proof. It is unsafe ordinarily to use any raw vegetables in New Zealand unless the garden is adequately protected. Sheep are driven to the abattoir on the hoof. The Board of Health maintains that if they could keep the dogs out they could control the condition, but so far the sheep-men, representing a huge industry, have won out and *hydatid* is still a problem. It is a disease occurring in Australia, New Zealand and the Argentine, due to a parasitic organism which grows, or lives, I should say, as a passenger in the sheep's intestine. It passes from the sheep to the sheep dog, but the dog in his contact with humans and with vegetable gardens is able to pass that parasite on, thus, through eating uncooked foods there is danger of the parasite's entering the human intestine. Here it becomes malignant and generally attacks a vital organ of the body. The liver is the favorite point of attack. As the growth develops the patient's cure depends upon whether the condition is operable or not, acting very similarly to cancer.

In making a study of special diet problems, I found a diabetic clinic already established. There is a large consumption of carbohydrates, and an interesting observation in talking to recently admitted diabetic patients was that they were all heavy bread eaters. Its bearing on the question is, of course, only thought provoking. There was a very good follow-up out patient clinic where I was able to place senior Home Science students.

One of the chief problems was that of goitre, largely endemic. There is also a large percentage of the toxic type as well. Investigators are relating the disease to the conditions of the soil, having found a definite relationship between the amount of iodine found in the various localities, and the percentage of endemic goitre. The high incidence of this disease is surprising to find in a seacoast country. All of the large communities are near the sea, but a study of the dietary of the British in comparison with that of the Maoris revealed a rather interesting point in that the European dietary is chiefly meat and carbohydrates and very little fish, partly because fish is expensive. The fishermen go out and make a haul, and if they have more than enough fish to supply the demand, overboard go the fish to keep the price up. Meat is very cheap, mutton being one of the chief products. We did not find that many green vegetables were used. There was a great deal of the cereal type of food, while the vegetables used were generally boiled and the vegetable water thrown away.

The Maori population were physically very fit. There was goitre among the Maoris before the Europeans came, but for the most part among the inland tribes. On the seacoast we found very little evidence of goitre among the Maori people, probably because their diet was chiefly fish. They also used a wild "sow thistle" which appeared to be of the dandelion family. Many of them lived in the thermal regions of the North Island where there are large steam holes. The custom, still practised, was to put vegetables in hand-woven baskets, place them in the steam holes and cover them up. In this way the vegetables are cooked with no loss of mineral salts.

Every patient who came into the hospital was examined for any indication of either endemic or toxic goitre, and given as much iodine-containing food as possible. Each patient was instructed in his diet before leaving the hospital. The toxic goitre cases, of course, were treated differently.

I found that typhoid cases were still being starved and was able to introduce the use of high caloric feeding and ice cream. I think the most successful work we did was with pernicious anemia. I was notified when there was a case of pernicious anemia in the hospital and the treatment depended on me. We followed the routine dietary prevalent in hospitals in America with quite satisfactory results. All patients were given liver recipes, with instructions in preparation, before discharge.

The problem of early decay of teeth was a real one, but one with which I had little connection. Lack of interest in oral hygiene and a low calcium dietary seemed to be the predisposing causes. There was an excel-

lent dental school, but unfortunately people were slow to heed its warnings. A dental nurse has been placed in the schools to effect an early educational interest.

There is a low infant mortality in New Zealand, due to a very definite concentrated effort toward child welfare. However, they are still adhering to the top milk method, and whereas the babies are apparently of a very healthy type, as one would expect with plenty of sunshine and plenty of milk, it is a question whether the low calcium content of the top milk formula does not have a bearing upon the rachitic conditions found in the early school life of the children.

The organization of dietary instructions in the nursing department was one that met with the full support and coöperation of the Matron. This title, by the way, when applied in a British hospital, indicates that the bearer is the superintendent of nurses, in charge of all housekeeping, maids, and the welfare of all women on the staff. She is the social hostess of the hospital as well. Until the coming of the dietitian, she had also charge of the kitchens. The New Zealand standard of nursing is high. National examinations for the certified nurse are sent twice a year from Government Headquarters in Wellington. There is a recognized official post of Director of Nursing within the Department of Health. However, in writing for the standards used in teaching dietetics I found that they depended upon each person who happened to be doing the teaching. Before my coming the nurses had gone to the technical school where they learned cooking. This course came at the end of their senior year. In the course we established for teaching the nurses, the first year consisted of the preparation of ward drinks and soft solids with a brief discussion of elementary physics and chemistry. This was followed by twenty-four two-hour lessons in cookery as related to the normal hospital dietary. In the senior year, lectures on diet and disease, related so far as possible to the medical courses, were given.

Wishing to educate the general public to the home economic point of view, we established what were called Home Economics Clubs. Credit is due to Professor Strong of Otago University who developed the idea. We lectured to the women in their clubs, making use also of the radio. This work was on a volunteer basis. Eventually we succeeded in getting a Carnegie Foundation endowment which allowed for three salaried staff members for this type of work. Since I left the development has gone by leaps and bounds and the whole South Island and a great deal of the North Island now is turning to this phase of education.

It was very interesting to be in a country where there was so little poverty.[1] As a matter of fact, New Zealand is reputed to have more money per capita than any other country in the world, but it is so equally distributed that you are not conscious of it. There are some large individual fortunes, particularly in the sheep stations of the North Island. For the most part, however, control of the community lies with the middle class. Although suffering from the world wide economic depression, they do not have the slums and the poverty that one finds in other countries. It is the land where Samuel Butler wrote his "Erewhon," and to many who have gone there it has been their Utopia indeed.

[1] *Author's Note:* The earthquake, tragic as it was, affected in area, only the Hawke's Bay district, where five towns were virtually wiped out. At a time when business was at its worst, it hit the country when she was down. But food and all the necessities of life were rushed in from all sections of the Dominion. Through the pluck of its citizens Hawke's Bay is gradually returning to normal life.

RECIPES FOR WEIGHED DIETS

MARY M. HARRINGTON

Harper Hospital, Detroit, Michigan

In planning quantitative diets, standard weighed recipes are necessary to insure variety and palatability as well as accuracy. Recipe files, text, and food tables (1) list the total composition of the various ingredients, but do not list the composition of a standard portion of the cooked product. Rose (2) has calculated the value of one hundred calorie portions of cooked foods in a number of recipes, and this work has also been done on the basis of one hundred gram portions by the California Dietetic Association (3). A careful report has been made by Davis and Wait (4), giving the percentage composition of cooked food mixtures. However, most of the work has been done on standard recipes as used in the normal diet.

It is a known fact that the appetite is a limiting factor in serving diets with an increased energy content. The quantity of food eaten may be small, and therefore the total calories must be supplied in a very concentrated form. Each portion of food must contain an increased number of calories. In one series of observations (5), it was found that the average weight of food eaten from the house menu was 1500 to 1800 grams, and the total calories eaten at this time averaged 2200 to 2700. Thus, approximately 1.5 calories were obtained from each gram of food eaten. If it were necessary to supply a patient with 3600 calories from the house menu, he would have to eat 2400 grams of food, a quantity probably greater than his appetite would permit. By concentrating the diet, and supplying more calories per gram of food eaten, the required energy may be obtained without any apparent "forced feeding" of the patient. In order to supply 3600 calories in the same amount of food as eaten on the house diet, two calories must be supplied for every gram of food eaten.

The diet with increased calories must be so planned that the bulk of the vegetables, which supply only from 0.4 to 0.8 calories per gram, will be offset by using other foods which supply a higher concentration of calories. The variety and palatability of the high caloric diet must not be sacrificed to accomplish this result. By following the house menu

but increasing the caloric composition of the various foods the requirements may be met. The caloric value of the house menu may be modified as follows:

a. Cereal may be cooked in milk or cream, and dates, figs, or raisins may be added. Butter may be added to some cereals without detracting from the flavor.
b. Heavy cream should be supplied for the cereal, sauce, or wherever it may be consistently used if the patient does not object.
c. Soups with a high caloric value (2 to 3 calories per gram, *see recipes*) may be served.
d. Cream may be used instead of milk as a basis for desserts such as custards, puddings, whips, mousses, and concentrated sauces for ice cream.
e. Concentrated cream sauce may be used on cooked vegetables, concentrated dressings on salads.

The tray with greatly increased calories does not necessarily appear different from the house tray, carrying the same menu; but it differs greatly in composition and preparation. The calories of the house menu may be greatly increased as follows:

HOUSE MENU	HIGH CALORIC
Breakfast	
Orange	Orange
Wheat cereal	Wheat cereal (20 per cent cream instead of water, and dates added)
Eggs	Bacon and eggs
Toast and butter	Buttered toast (1 square on every slice)
Coffee	Chocolate (special recipe no. 1)
Dinner	
Consommé	Cream of asparagus soup (*see recipe* no. 2)
Roast chicken	Roast chicken
Baked potatoes	Baked potatoes
Buttered peas	Buttered peas
Celery and olives	Lettuce and tomato salad with mayonnaise
Lettuce and tomato salad with French dressing	Ice cream with caramel sauce (*see recipe* no. 3)
Ice cream	Bread—½ slice
Bread and butter	Butter—1 square
Tea and milk	Milk and cream, or chocolate

HOUSE MENU	HIGH CALORIC
Supper	
Cream of celery soup	Cream of celery soup (*see high-caloric recipe* no. 1)
Cold meat	Cold meat
Potato salad	Potato salad (add whipped cream to mayonnaise in generous amounts)
String beans	String beans
Fruit salad with dressing	Fruit salad with boiled dressing (*see recipe* no. 1)
Peaches	Peach whip (special recipe)
Bread and butter	Bread—½ slice, and butter—1 square
Tea and milk	Milk and cream, or chocolate

The caloric value of standard recipes may be increased by the addition of:

a. Butter.
b. Coffee cream or heavy cream instead of water or milk.
c. Lactose and glucose. These are not as sweet as cane sugar and a greater quantity may be used without detracting from the flavor of the finished product.

A series of recipes were modified to increase the caloric value in the manner described, and are used in all qualitative diets that require a marked increase in calories. These recipes are also used in quantitative diets, but are standardized as to quantities served. Sauces, salad dressings and cream sauces may be prepared in large quantities and used to supplement the house menu. These recipes have been evaluated as to palatability, and the only objection to the types of food served is that of an occasional patient who does not like thickened cream soups. In such instances the calories may be incorporated in some other form.

A thin white sauce made with equal parts of coffee cream and heavy cream instead of milk is used as the basis of soups. One-fourth cupful of puréed vegetable is added to one-fourth cupful of this sauce. This is the standard used for all high-caloric cream soups. By using glucose and lactose with cream, a very palatable chocolate sauce for ice cream may be made which will supply 4.3 calories per gram without being so sweet as a sauce made with cane sugar. A number of recipes for soups, cream sauces, salad dressings and desserts have been worked out for use in our dietetic department. Several of these recipes are included to show the type of modification. This is merely a beginning; we hope to develop more recipes which give the percentage composition of the cooked product. A few are given to illustrate the plan used. Other recipes

in preparation will be given to the diet therapy sub-committee which is continuing this work.

These recipes have been prepared through the assistance of Mrs. Mavis Gibbs of the Harper Hospital dietetics staff.

White sauce no. 1, standard

MATERIALS	MEASURE	WEIGHT	P.	F.	CHO.	CAL.	Ca	P	Fe
Milk	1 c.	200	6.6	8.0	10.0	138.0	0.240	0.186	0.0004
Butter	3 t.	15	0.1	12.7		115.0	0.002	0.002	0.00003
Flour	1 T.	5	0.5	0.05	3.7	17.6	0.001	0.004	0.00005
Salt	½ t.								
			7.2	20.75	13.7	270.6	0.243	0.192	0.00048
Recipe prepared—3 times									
Time of cooking—15 minutes									
Cooked weight (average of 3 prepared) 191 gms.									
100 gram portion			3.7	10.8	7.2	141.6	0.127	0.100	0.00025
Flavor and consistency—standard									

White sauce no. 1, high caloric

MATERIALS	MEASURE	WEIGHT	P.	F.	CHO.	CAL.	Ca	P	Fe
Milk	½ c.	100	3.3	4.0	5.0	69.0	0.120	0.093	0.0002
Cream—20 per cent	½ c.	100	2.5	18.5	4.5	195.0	0.097	0.086	0.0002
Flour	1 T.	5	0.5	0.05	3.7	17.6	0.001	0.004	0.00005
Butter	3 t.	15	0.1	12.7		115.0	0.002	0.002	0.00003
Salt	½ t.								
			6.4	35.7	13.2	396.6	0.220	0.185	0.00048
Recipe prepared—3 times									
Time of cooking—15 minutes									
Cooked weight (average of 3 prepared) 201 gms.									
100 gram portion			3.2	17.8	6.6	198.3	0.110	0.092	0.00024
Flavor and consistency—good as a basis for soups									

Cream soup, high caloric

MATERIALS	MEASURE	WEIGHT	P.	F.	CHO.	CAL.	Ca	P	Fe
White sauce (H.C.)	¼ c.	50	1.6	8.9	3.3	99.1	0.055	0.046	0.00012
5 per cent vegetable (asparagus)	¼ c.	50	0.5		2.0	10.0	0.012	0.019	0.0005
			2.1	8.9	5.3	109.1	0.067	0.065	0.00062
Recipe prepared—3 times Time of cooking—5 minutes Cooked weight (average of 3 prepared) 100 gms.									
100 gram portion			2.1	8.9	5.3	109.1	0.067	0.065	0.00062
Flavor and consistency—good									

Caramel sauce, high caloric

MATERIALS	MEASURE	WEIGHT	P.	F.	CHO.	CAL.	Ca	P	Fe
Brown sugar	1 c.	200			200.0	800.0			
Glucose	½ c.	100			100.0	400.0			
Lactose	½ c.	100			100.0	400.0			
Cream—20 per cent	1½ c.	300	7.5	55.5	13.5	585.0	0.291	0.268	0.0006
Cream—40 per cent	½ c.	100	2.2	40.0	3.0	381.0	0.086	0.067	0.0002
			9.7	95.5	416.5	2,566.0	0.377	0.335	0.0008
Recipe prepared—3 times Time of cooking—15 minutes Cooked weight (average of 3 prepared) 720 gms.									
100 gram portion			1.3	13.2	57.8	356.3	0.052	0.049	0.0001
Flavor and consistency—very good									

Boiled dressing, high caloric

MATERIALS	MEASURE	WEIGHT	P.	F.	CHO.	CAL.	Ca	P	Fe
Eggs—1		50	6.7	5.2		74.0	0.033	0.090	0.0015
Sugar	3 T.*	30			30.0	120.0			
Lactose	5 T.	50			50.0	200.0			
Cornstarch	⅓ t.	3			2.7	10.8			
Butter	1 t.	5		4.2		38.5	0.0006	0.0006	0.0001
Cream—40 per cent	¼ c.	50	1.1	20.0	1.5	190.5	0.043	0.033	0.0001
Mustard	¼ t.								
Salt	¼ t.								
Vinegar	¼ c.	50							
			7.8	29.4	84.2	633.8	0.0766	0.1236	0.0017
Recipe prepared—3 times Time of cooking—15 minutes Cooked weight (average of 3 prepared) 175 gms.									
100 gram portion			4.4	16.8	46.1	362.1	0.0437	0.0706	0.0009
Flavor and consistency—good									

* Dessert-spoon used instead of tablespoon.

Chocolate paste, high caloric

MATERIALS	MEASURE	WEIGHT	P.	F.	CHO.	CAL.	Ca	P	Fe
Chocolate		200	26.6	100	60.0	1,246	0.186	0.913	0.0053
Glucose		300			300.0	1,200			
Water		150							
			26.6	100	360.0	2,446	0.186	0.913	0.0053
Recipe prepared— 3 times Time of cooking—15 minutes Cooked weight (average of 3 prepared) 475 gms.									
100 gram portion			5.6	21	75.7	515	0.039	0.192	0.0011
Flavor and consistency—not as sweet as standard chocolate paste									

Chocolate, high caloric

MATERIALS	MEASURE	WEIGHT	P.	F.	CHO.	CAL.	Ca	P	Fe
Chocolate paste	¾ c.	150	8.4	33.5	113.5	862.5	0.058	0.288	0.00160
20 per cent cream	2 c.	400	10.0	74.0	18.0	780.9	0.344	0.268	0.00088
Lactose	½ c.	100			100.0	400.0			
Milk	½ c.	100	3.3	4.0	5.0	69.0	0.200	0.093	0.00024
Salt—few grains. Vanilla	1t.								
			21.7	111.5	23.56	2,111.5	0.602	0.649	0.00272
Recipe prepared—3 times Time of cooking—5 minutes Cooked weight (average of 3 prepared) 728 gms.									
100 gram portion			2.98	15.3	32.4	290.0	0.082	0.089	0.00037
Flavor and consistency—very good									

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EDITORIAL

The President's Greeting to Members

It is time for members to make plans to attend the annual convention of The American Dietetic Association at Cincinnati, Ohio, October 19, 20 and 21. This means that another year's growth of our Association is completed and we will be privileged soon to meet together to discuss the accomplishments of the year and to make plans to further serve those concerned with this and allied fields.

One important work completed this year has been the personal inspection of courses for student dietitians. Not only has this been beneficial in assuring future dietitians a well rounded training, but the committees have brought to hospitals and received from superintendents and hospital workers an inspiration and mutual understanding of problems which can only be developed and strengthened through such personal contacts.

We are pleased that during this year there has been continued interest in the formation of state associations and it is a significant fact that more professional groups of dietitians in communities are organizing and benefiting by such activities. This progress in organization is the nucleus of our future strength and challenges our Association each year to see these opportunities and to lend encouragement and guidance whenever possible.

The various chairmen of the committees for the year have had a gratifying response of interest from the membership which has been a great source of inspiration. At our coming meeting you will have the opportunity to hear reports of these accomplishments and of the plans for the application of their findings.

The Cincinnati Dietetic Association and the Ohio Dietetic Association have been planning enthusiastically for the coming convention, giving unsparingly of their time to assure its success and to give those in attendance the opportunity to see and know Cincinnati.

The present needs of our profession and the greater needs of the future beckon us to a privilege of associations, a broader self-expression, a higher appreciation of human friendships, and a wider opportunity for helpfulness. It is for this purpose that we meet and as it is your convention,

we hope you will come ready to participate in the work and pleasures of the week.

S. MARGARET GILLAM,
President.

Registration will begin at 8:30 a.m. Monday morning. To help finance the Convention a registration fee of two dollars is charged all members attending the meeting.

On Sunday, between 2 p.m. and 5:30 p.m., members are invited to report at the registration desk which will also serve as information headquarters for the day.

Reduced railway fares—special cars. A fifty per cent reduction in the return fare is offered to members *provided* 150 certificates are endorsed and validated at Cincinnati. It is important that the instruction below be carefully followed:

1. Call at the railroad station for ticket and certificate at least 30 minutes before departure of train.

2. Certificates are not kept at all stations. Ask your home station whether you can procure certificates and through tickets to the place of meeting. If not, buy a local ticket to the nearest point at which a certificate and a through ticket to Cincinnati can be bought.

3. Buy a regular one-way ticket to Cincinnati between October 15 and 20, except in the western states where the dates vary from October 11 to October 15 as opening days, and October 17 to 20 as closing dates for purchase.

4. Be sure that when purchasing the going ticket you request a certificate. Do not make the mistake of asking for a receipt.

5. Immediately upon your arrival at Cincinnati present your certificate to Phyllis D. Rowe, or her representative, at the desk marked "validation," as the reduced fare for the return journey will not apply unless you are properly identified as provided for on the certificate.

6. If the necessary minimum of 150 regularly issued certificates are presented to the special agent, and your certificate is validated, you will be entitled to a return ticket via the same route as the going journey at one-half of the normal one-way tariff fare from Cincinnati to the point at which your certificate was issued.

7. Have your endorsed certificate validated by the special agent of the railroads who will be in attendance at Association headquarters in Cincinnati. If you leave for home before the arrival of the special agent, or

arrive later, after the agent has gone, your certificate cannot be validated, nor can you secure the benefit of the return reduction.

On Sunday, October 18, arrangements have been made for special cars to be reserved for Association members on the trains leaving from the points indicated below:

POINT OF DEPARTURE	ARRIVE CINCINNATI	TRAIN	LINE
St. Louis at 10:00 a.m.	7:55 a.m.	Cincinnati Night Special	Big Four
Chicago at 11:40 p.m.	7:55 a.m.	Cincinnati Night Special	Big Four
Roosevelt Rd.	7:55 a.m.	Cincinnati Night Special	Big Four
Boston at 12:30 p.m.	9:15 a.m.	Ohio State Limited	New York Central
New York at 3:00 p.m.	9:15 a.m.	Ohio State Limited	New York Central
Pittsburgh at 9:00 p.m.	8:00 a.m.	Cincinnati Limited	Baltimore and Ohio
Philadelphia at 3:23 p.m.	8:50 a.m.	National Limited	Baltimore and Ohio
Baltimore at 5:25 p.m.	8:50 a.m.	National Limited	Baltimore and Ohio
Washington at 6:30 p.m.	8:50 a.m.	National Limited	Baltimore and Ohio

Local railroad agents will call upon you to arrange for reservations. Members planning to motor to Cincinnati can secure information about the best routes just before the time of leaving by writing to the Cincinnati Chamber of Commerce, or by calling the local office of the American Automobile Association.

Trips. The local group are arranging a most interesting day for the members on Thursday. Plans for the morning include a visit to the Hamilton County Tuberculosis Sanitorium followed by a luncheon.

The sightseeing trips of the city in the afternoon will take the members through the Rockwood Pottery plant and will give them the opportunity of seeing the University of Cincinnati and the Hughes High School, as well as the down town section and the beautiful park system of the city.

The Christ and the Good Samaritan Hospitals invite the members to tour their dietary departments and have tea at the close of the trip.

Program of the Fourteenth Annual Meeting of the American Dietetic Association

October 19, 20, 21, 1931

At the Hotel Gibson, Cincinnati, Ohio

Saturday, October 17, 1931

10:00 a.m. Executive Committee Meeting.
Luncheon for Officers, John Shillito Tea Room, Mrs. Linda Brown, Hostess.

Sunday October 18, 1931

10:00 a.m. Executive Committee Meeting.
4:30 p.m. Tea—Guests of Hotel Gibson.

Monday, October 19, 1931

8:30 a.m. Registration.
9:00 a.m. Visit Exhibits.
11:00 a.m. General Sessions—S. Margaret Gillam, President, presiding.
Opening address—The Dietitian as an Administrative Officer in The Institution. Dr. A. C. Bachmeyer, Superintendent, City of Cincinnati General Hospital.

Close of Session—Special Announcement

1:00 p.m. Welcoming Luncheon, Guests of the Hotel Gibson—Mary I. Barber, Director Home Economics Dept., Kellogg's, Battle Creek, Michigan, Presiding.
2:30 p.m. Annual Business Meeting. S. Margaret Gillam, President—Presiding.
4:30 p.m. Investigation Board Meeting—Lenna Cooper, Montefiore Hospital, N. Y., Chairman
7:00 p.m. Banquet—S. Margaret Gillam, President, Presiding.
Address—Judge Florence E. Allen, Supreme Court of Ohio.

Tuesday, October 20, 1931

8:00 a.m. Social Service Section Committee Breakfast—Laura Comstock, Chairman, Eastman Kodak Co., Presiding.
8:30 a.m. Journal Board Meeting—Mrs. Mary Pascoe Huddleson, Editor, presiding.
9:00 a.m. Visit Exhibits.
10:00 a.m. General Sessions—Dr. Ruth Wheeler, Director, Institute of Euthenics, Vassar College, Presiding.
Control of Edema—Dr. F. H. Lashmet, Dept. of Internal Medicine, University of Michigan, Ann Arbor, Mich.

Present Day Dietetic Therapy in Nephritis and Allied Conditions —Dr. James P. O'Hare, Associate in Medicine, Peter Bent Brigham Hospital, Boston.

Research in the Food Industry—Mr. Lewis W. Waters, Vice-President, General Foods Corporation, New York City.

Infant Feeding—Dr. Julius Hess, Michael Reese Hospital, Chicago.

1:00–3:00 p.m. Administrative Section Luncheon—Helen Gilson, Presiding, Reports of Committees.

Personnel Study—Hospitals 100–500 Beds, continued from 1930, Rose T. Baker, Director of Commons, Phillips Andover Academy, Andover, Mass.

Food Costs—Frances B. Floore, Director of Dietetics, St. Luke's Hospital, Chicago.

Equipment—Studied with special emphasis on the necessity of co-ordinating our specifications with those of the architect and kitchen equipment engineer—Mabel G. Supplee, Director, Dietary Dept., Fifth Avenue Hospital, New York City.

Large Quantity Cooking—Mr. Arnold Shircliffe, Belden Stratford Hotel, Chicago.

Canned Goods—Ruth Atwater, Nat'l Canners Ass'n.

Bibliography—Minerva Harbage, Asst. in Home Economics, Ohio State University, Columbus, Ohio.

Affiliation Contacts—Mary M. Harrington, Director of Dietetics, Harper Hospital, Detroit, Illinois.

(Present questions for discussion during the meeting in writing to the Chairman.)

4:00 p.m. Teas given by School of Household Administration, University of Cincinnati and at Vincent Hall at the Children's Hospital.

7:00 p.m. Diet Therapy Section Dinner—Mrs. Dorothy Stewart Waller, presiding.

Case Study and Diet History. A report of the Committee studying in practice the form developed by Miss Ross and Miss Anderson as a section project last year. Mary Foley, Chairman, Kahler Corp., Rochester, Minn.

Recipe Collection for Calculated Diets
Genevieve Cartmill, Chairman, Univ. of Michigan Hosp., Ann Arbor, Michigan.

Food Analysis and Factors Affecting their Interpretation
Martha Davis, Chairman, Univ. of Chicago, Chicago, Ill.

Standardization of Hospital Diets
Grace Bulman, U. S. Veterans' Bureau, Washington, D. C.

Quality Studies of Therapeutic Diets
The Ulcer Diet—Lute Troutt, Chairman, Univ. of Indiana Hospital, Indianapolis.
The Reduction Diet—Elizabeth Hayward, Chairman, Santa Barbara Cottage Hospital, Santa Barbara, Calif.
The Nephritis Diet—Sister Mary Victor, Chairman, St. Mary's Hospital, Rochester, Minnesota.

WEDNESDAY, OCTOBER 21, 1931

8:00 a.m. Red Cross Breakfast for Red Cross Nutritionists, enrolled Red Cross Dietitians and friends of the Red Cross, Clyde Schuman, National Director Nutrition Service, American Red Cross, presiding.
8:30 a.m. Placement Board Meeting.
9:00 a.m. Visit Exhibits.
10:00 a.m. General Sessions—Emma Feeney, Pratt Institute, Brooklyn, N. Y., presiding.
Styling Food—Mabel Little, LaSalle and Koch, Toledo, Ohio.
Reducing the Labor Turnover of Dietitians—Elizabeth Dyer, Director, School of Household Administration, University of Cincinnati.
The Graduate's Preparedness to Carry on the Purpose of a Food Enterprise—Mrs. Mary Love McGuckin, The Maramor, Columbus, Ohio.
Personnel Work with Hospital Employees—Edith Smith, Personnel Manager, Mt. Sinai Hospital, New York.
1:00 p.m. Affiliation Luncheon—Anna Boller, presiding.
2:30 p.m. General Sessions—Amalia Lautz, presiding.
Studies of the Relation of Diet to Dental Caries—Martha Koehne, Ph.D., School of Dentistry, Univ. of Michigan.
Modern Parents' Attitudes and Science—Ada Hart Arlitt, Ph.D., Univ. of Cincinnati, Cincinnati, Ohio.
A Venture in Teaching Applied Dietetics to Health Workers (illustrated with charts)—Frances Stern, Chief, Food Clinic, Boston Dispensary, Boston.
7:00 p.m. Education—Social Service Section dinner—Mrs. Mary deGarmo Bryan and Laura Comstock, presiding.
Social Service Section program
Reports followed by brief discussions.
Child Health—Anna DePlanter Bowes
School Health—Vera M. Stemple
Health Work with Adults—Claudia Gilbreath
Teaching Nutrition in Clinics, Gertrude Spitz

Commercial People Interested in Nutrition—Lillian B. Storms
Journalists (dealing with nutrition) Edith M. Barber
Public Health Program—Alberta B. Childs
Shall we Rename the Section?—A Discussion of its Scope—Mary I. Barber
Education Section Program
Reports
Hospital Courses for Student Dietitians approved by the American Dietetic Association—Mrs. Ruth Cooley Baumhoff
Teaching Material for Medical Students—Fairfax Proudfitt
Academic Preparation for Dietitians—Nelda Ross
Outline in Dietetics for Nurses in Practice—Ethel Thompson

THURSDAY, OCTOBER 22, 1931

Trips
Tea
Christ Hospital
Good Samaritan Hospital

SCHEDULE FOR OFFICERS AND SECTION CHAIRMEN AT ASSOCIATION BOOTH

Monday, October 19

10:00 a.m.	Mrs. Thoma Mrs. Huddleson

Monday afternoon

Business meeting

Tuesday, October 20

10:00 a.m.–12 noon	Miss Rowe Miss Barber
1:00–3:00 p.m.	Miss Lenfest
3:00–5:00 p.m.	Miss Gilson and members of the Sub-Committee

Wednesday, October 21

10:00 a.m.–12 noon	Miss Gillam Miss Koehne Miss Comstock Chairman of Sub-committees
2:00–5:00 p.m.	Mrs. Baumhoff Mrs. Waller Mrs. Bryan Chairman of Sub-Committees

Convention Notes. The opening address will be given by A. C. Bachmeyer, M.D. Superintendent of the Cincinnati General Hospital. The Association is fortunate, indeed, in having such an able hospital administrator as Dr. Bachmeyer, who is also Dean of the Medical College of the University of Cincinnati, give the first address.

Dr. Julius Hess, who will speak on "Infant Feeding," is a graduate of Northwestern Medical College, and professor of pediatrics at the Illinois College of Medicine and Chief of Staff at Sarah Morris Hospital, Michael Reese Hospital, Chicago.

Dr. F. H. Lashmet is a graduate of the University of Michigan Medical School, and at present in the Department of Internal Medicine at the University Hospital.

Dr. James P. O'Hare, was graduated from Harvard Medical School in 1911, where he is now Assistant Professor of Medicine. Dr. O'Hare is the author of several articles on nephritis and hypertension. He has written the articles on nephritis in the Oxford System of Medicine, Blumer's "Bedside Diagnosis" and Osler's "Modern Medicine."

Mary I. Barber will preside at the luncheon on Monday noon. There will be no formal program, but a report will be given from each section outlining its aims. Members attending the national meeting for the first time can find from these reports just which section will fill their needs. One of the officers or committee chairmen will act as hostesses at each table so you can sit where you are most interested. Please make your reservations for this luncheon as soon as possible after your arrival. On Tuesday, members whose work lies in any of the following fields is invited by Miss Comstock to attend the Social Service Section breakfast to discuss problems and to formulate plans for the program for the coming year:

1. Child Health: Anna DePlanter Bowes, Chairman, Philadelphia Child Health Society.
2. School Health: Vera M. Stemple, Chairman, Eastern High School Cafeteria, Baltimore.
3. Health Work with Adults: Claudia Gilbreath, Chairman, Chattanooga Chapter, American Red Cross.
4. Teaching Nutrition in Clinics: Gertrude Spitz, Chairman, Beth Israel Hospital, Boston.
5. Commercial People Interested in Nutrition: Lilliam B. Storms, Chairman, Department of Education and Nutrition, Gerber Products Division.
6. Journalists: Edith M. Barber, Chairman, New York City.
7. Exhibit Material: Alberta B. Childs, Chairman, Infant Welfare Society.

Each group will be seated at a different table therefore it is necessary to indicate the group preferred when signing up. Members will note that it is not necessary to choose but one among several section meetings this year, since none of the meetings conflict.

On Wednesday morning, Clyde B. Schuman, National Director of the Nutrition Service of the American Red Cross, invites all Red Cross nutritionists and enrolled Red Cross dietitians and friends to attend the breakfast at 8:00 a.m.

The Association booth is to be headquarters for the National Officers this year. The program gives the time when certain officers and committee members will be present. They will welcome your coming to see them regarding any matters which you would like to discuss. Miss Lenfest will have a special desk for the Placement Bureau and be present each day at hours given in the daily bulletins. Any members wishing to talk to her about positions or Placement Bureau problems will find her there at the times indicated.

The members will find the commercial exhibit unusually stimulating. Exhibitors will show new foods and different ways of serving foods previously introduced. They will show new machines and improved models of familiar equipment. New books will also be on display. The sessions have been so scheduled as to give members ample time to see these exhibits and discuss them. The following list of exhibitors will be in attendance:

Amcoin Corporation will exhibit their all glass interior coffee making system. By the elimination of contamination this urn makes possible the production of a wholesome and superior beverage. Many dietitians from leading hospitals will verify these statements. It is an economical system, too. Users report from 20–30 per cent coffee and 25 per cent cream savings.

Battle Creek Food Company, Battle Creek, Michigan.

The Century Machine Company will exhibit baking equipment machines and call especial attention to their new 12-quart mixer. This mixer with its extra heavy construction, its built-in motor with all gears running in oil makes a quiet running machine sturdy enough to stand up under any service condition. When passing the booth ask to see the mixer and the attachments which may be used with it. These make possible a very wide range of work.

R. B. Davis Sales Company will serve Cocomalt at Booth No. 18 and exhibit Davis Baking Powder and Cut-Rite waxed paper.

The Du Bois Soap Company will exhibit Lite-ning Kleanzer, a scientifically prepared, nonsudsing compound made especially for use in dishwashing mashines. Because Lite-ning Kleanzer attains a high degree of sterilization it is particularly valuable to hospitals and similar institutions. Neutraloid, a neutral cleaning compound which comes packed in a self-mixing drum will also be shown. Mr. G. I. Newton, who will be in charge of the exhibit, will welcome the opportunity of talking with dietitians about their cleaning problems.

Evaporated Milk Association, Chicago, Ill.

M. F. Foley Company will show Foley canned sea foods. They will also demonstrate different methods of dressing and filleting fresh fish.

J. B. Ford Company will show Wyandotte Cherokee Cleaner which is proving so satisfactory in the washing of dishes by machine. It has done all that has been claimed for it—washed dishes cleaner, at a low cost, and at the same time keeping the dishwashing machine free from scale. They will also exhibit Wyandotte Detergent, and Wyandotte Yellow Hoop for use in the laundry.

Fremont Canning Company, Gerber Products Division, Fremont, Michigan, will show a complete line of sieved vegetables and fruits for infant feeding and special diets.

General Baking Company will have on display the new Vitamin D Bond Bread with reports of research which is being conducted.

General Foods Corporation will have an exhibit of the various products of General Foods Corporation together with printed material on food selection and food preparation.

Chr. Hansen's Laboratory, Inc., will show Junket Powder and Junket tablets. Junket Powder makes delicious general desserts. Its colorful appearance and variety of flavors appeal to patients whether on general or soft diets. There are six different flavors. Junket Brand Food Colors are ideal for coloring ice cream, gelatine desserts and salads and other foods. They come conveniently put up in four attractive colors. Ask for "4 ways to make diet-kitchen trays tempting."

H. J. Heinz Company, Pittsburgh, Pa.

The Hobart Manufacturing Company will exhibit electric food machines, and the Crescent Division of the Company will show electric dishwashing machines. There is a "right-size" Hobart for every type of institutional service, whether it is the small floor diet kitchen or the big main kitchen. The Hobart Company is interested in more than giving over to purchasers a perfect running machine. It has placed trained service men all over the country so that Hobart customers are never far from Hobart service. The Hobart reputation for excellence of performance and ease of operation, plus this readily available service, has made Hobart standard equipment in hundreds of hospitals.

The *Horlick's Malted Milk Corporation* will exhibit Horlick's Malted Milk, natural and chocolate flavors, and Horlick's Malted Milk Lunch Tablets, in the same flavors. Some of the special uses of interest to dietitians which will be emphasized are the following: (1) for sleeplessness; (2) for infant feeding; (3) in digestive disorders; (4) during colds and influenza; (5) in nervous cases; (6) in convalescence; (7) for the undernourished; (8) for the growing child.

International Nickel Company, Inc., New York City.

The Kellogg Company will exhibit again this year for the seventh consecutive time. This organization has always maintained the high standards of quality and takes pride in keeping factory conditions as perfect as is physically possible. This year the use of individual packages of cereals will be emphasized. This service in hospitals eliminates waste, is more attractive and has an appetite appeal. The full line of products will be shown—Kellogg's Corn Flakes, Rice Krispies, Pep Bran Fakes, All-Bran, Whole Wheat Biscuit, Krumbles, and Kaffee Hag Coffee.

Ko-Ray Manufacturing Company will show how it is possible to effect over fifty per cent savings in normal gas consumption by the use of the new, improved Standard Ko-Ray. This machine which roasts, bakes, boils and steams is easily operated and automatically controlled. Vegetables and meats will be prepared and served at the booth giving the members an opportunity to judge for themselves the "appetite appeal" of foods cooked in the Ko-Ray.

Kraft-Phenix Cheese Corporation exhibit will feature Kraft Velveeta, stressing its adaptability to the diet of special groups,—especially children. A pictorial story of how Kraft Velveeta is made will be shown, as well as a chart based on the results of feeding tests made at Rutgers University.

J. B. Lippincott Company will bring their new edition of "Nutrition in Health and Disease" by Cooper, Barber and Mitchell, and Dr. Kugelmass' "Nutrition." They will also have in their display the following books which are interesting to dietitians: "Simplified Diabetic Management," Joseph T. Bearwood, Jr. and H. T. Kelly; "The Art of Cooking for Two," Mrs. Iris Pronty O'Leary; "The Family's Food," Faith R. Lanman, Hughina McKay and Frances Zuill; "Food Purchasing for the Home," Ronetta Day Blinks and Willetta Moore; "Successful Canning and Preserving," Ola M. Rowell Malcolm; "Nutrition of Mother and Child," C. U. Moore; "Food: Its Planning and Preparation," Mabel T. Wellman, and "Food Facts for Everyday," Florence E. Winchell.

The Macmillan Company. Among the outstanding books on display at the Macmillan exhibit will be the fifth edition of Proudfit's *Nutrition and Diet Therapy*, the new Teacher's Guide to which we have just published. We shall be glad to send a complimentary copy of this Teacher's Guide to any teacher of dietetics in a school of nursing. Ask also to see Rose's *Foundation of Nutrition*, the third edition of Sherman's *Chemistry of Food and Nutrition*, and the fourth edition of McCollum and Simmonds' *The Newer Knowledge of Nutrition.*

Mead Johnson and Company will have on exhibit its complete line of infant diet material including Mead's Dextri-Maltose—Mead's Cod Liver Oil—Mead's Viosterol—Mead's Recolac—Mead's Non-Curdling Powdered Protein Milk—Mead's Non-Curdling Powdered Lactic Acid Milk—Mead's Powdered Yeast and Mead's Cereal. There will also be for the examination of dietitians a complete line of Mead's services such as diets for older children—Height and Weight Charts, etc., all of which are free to members of the profession in any quantity desired.

Mellin's Food Company. An exchange of ideas and opinions relative to the feeding of infants and in regard to the preparation of nourishment for adults requiring a restricted diet are of much value, particularly in view of the recognized importance of selecting food material best adapted to the individual requirements. The Cincinnati Meeting will afford an opportunity for such discussion, not only during the general session, but in the exhibit hall where representatives of the Mellin's Food Company will await dietitians' questions and be ready to discuss the subject matter from the maker's viewpoint. Members of the Association are cordially invited to call at Space No. 16.

The Nutradiet Company will have on display Nutradiet brand fruits packed without sugar and vegetables packed without salt for restricted diets. They will also show Rubyettes and will have for distribution recipe booklets for dressing up salads and desserts with Rubyettes.

Ralston Purina Company Inc. will show Baby Ralston, their new cereal. Baby Ralston is especially designed for the first supplement to the baby's milk diet. Its smooth texture and high vitamin content, particularly B_1, has already made it accepted in infant feeding wherever it has been introduced. Ralston Wheat Cereal and Rye Krispies will also be on display. Comprehensive reports of laboratory research on all three of these products will be available as well as the whole grain charts and other teaching material.

John Sexton and Company, Chicago, Ill. will show a complete line of canned goods and food products for the institution.

Specialties Corporation, Chicago, Ill.

The E. R. Squibb & Sons Exhibit will feature some of the more recent discoveries in the prophylactic use of vitamins as disease preventives. As an added feature, charts and models will be shown illustrating the more recent trend in the dietitic management of diabetes, with special reference to the new analyses of many foods and the use of higher carbohydrate diets as a means of preventing "diabetic" arteriosclerosis.

Two new vitamin products will be shown: *Adex Tablets*—a highly potent, vitamin-tested concentrate of Squibb Cod-liver Oil, rich in vitamins A and D, and *Chocolate-Vitavose*—a delicious chocolate-flavored wheat germ sugar product, rich in vitamin B and iron. Many other Squibb products of special interest to dietitians will also be on display.

Standard Brands Incorporated will show Royal Gelatin and Chocolate Pudding. There will also be on display Chase & Sanborn Coffees and Fleischmann's Baking Powder. Miss Doris Tisdale who will be in charge of the exhibit will be glad to show members charts and photographs covering these products. Dietitians will also welcome the opportunity of adding to their files the new institutional recipe material which will be available at the booth.

Stewart and Ashby Coffee Company will show Chicago Tea Bag Company tea bags which are especially packed for use in hospitals, and tagged with the name of the institution serving them. Also, coffee will be brewed in the Silex Coffee Maker demonstrating its adaptibility for use in diet kitchens and private room service.

The Swartzbaugh Manufacturing Company will exhibit several new models of Ideal Food Conveyors. When a department is equipped with Ideals the dietitian is assured of the patients getting hot food for in an Ideal constant temperature is retained throughout the serving period. For years Swartzbaugh engineers have been studying the problems of hospital food distribution. The ideal is the result. An examination of the models on display will serve to show why hundreds of hospitals recognize the superiority of the Ideal Conveyor.

Wander Company, Chicago, Ill., will exhibit Ovaltine in Booths Nos. 39 and 40. You are cordially invited to have a cup of the refreshing beverage. Mr. C. R. Jenkins will be in charge.

CURRENT COMMENT

Standardized Outlines of Courses in Dietetics for Student Nurses

A series of outlines with varying number of hours allotted—namely, forty-five hour, sixty hour, and ninety hour plans—were prepared in 1930 by a sub-committee of the American Dietetic Association. These outlines have been available through the Business Office of the Association and have been at the disposal of teachers of nutrition and diet therapy for a year. It has been suggested by officers of the Association that an investigation be made as to their successful use in actual practice and that those who have used the outlines send Ethel M. Thompson, Assistant Professor, Household Administration Department, Western Reserve University, Cleveland, Ohio, their suggestions and criticisms.

It is hoped that the loyalty of the Association members and their professional spirit will lead them to assist in this work by sending unhesitatingly and promptly frank statements of their own opinions. Only in this way can the outline become progressively valuable and a credit to the American Dietetic Association.

Present Status of State Affiliation Program[1]

State Associations affiliated prior to July 14, 1930

British Columbia: President, Helen King, Royal Columbia Hospital, New Westminster, B. C.
California: President, Elizabeth Hayward, Cottage Hospital, Santa Barbara.
District of Columbia: President, Lurena Perrine, Garfield Memorial Hospital, Washington.
Indiana: President, Amy Colescott, City Hospital, Indianapolis.
Massachusetts: President, Rosina Vance, Massachusetts General Hospital, Boston.
Minnesota: President, Mrs. Lyl Borak, Glen Lake Sanitarium, Oak Terrace.
Ontario: President, Claribel Hazlett, Christie Street Hospital, Toronto.
Quebec: President, Irene Carpenter, 87 Ontario St., Montreal.
Washington: President, Margaret Terrell, University of Washington, Seattle.

State Associations accepted for affiliation since July 14, 1930

Colorado: President, Margaret Worner, Modern Woodmen Sanitarium, Woodmen.
Illinois: President, Millie Kalsem, 509 So. Honore St., Chicago.
Michigan: President, Dorothy S. Waller, University of Michigan, Ann Arbor.
New York: President, Blanche Bohoch, Rochester General Hospital, Rochester.
Ohio: President, Madelaine Tobias, 868 E. Broad St., Columbus.
Oregon: President, Elizabeth Baldwin, Dr. Coffey's Hospital, Portland.
Virginia: President, Bertha Ide, Protestant Hospital, Norfolk.

[1] August 4th, 1931.

State Associations not affiliated

Connecticut: Isabel Hunter, Bridgeport. No further report.
Iowa: Kate Daum, Iowa City. Voted to affiliate according to letter from secretary.
Missouri: Ruth Baumhoff, University City. Working on plans for affiliation.
Porto Rico: Rita Lang, San Juan. Plans under way for affiliation.
Rhode Island: Clara Watkins, Providence. No further report.
Tri-State (Tenn., Miss., Ark.): Fairfax T. Proudfit, Memphis. Hope to affiliate next year.

Planning formation of State Associations

Nebraska: Letter from Ethel Carlson states that they are unable to establish state association at the present time. They hope to have it in a year or two.
Pennsylvania: Being considered in all parts of the state.
Texas: On account of the distances, a state association will be difficult until there are more dietitians in the state. However, they are actively working on plans.

Existing Local and Sectional Associations

Iowa, Des Moines: President, Hazel Brown, Des Moines Chronicle.
Maryland, Baltimore: President, Mary Jones, 3405 St. Paul St., Greenway.
Michigan, Grand Rapids: President, Helen Fenerstein, Herpolsheimers Tea Room.
Michigan, Southeastern Mich. (Detroit, etc.): President, Mary M. Harrington, Harper Hospital.
Missouri, Kansas City: President, Mrs. Clarence Cross, 2744 Gillhan Road.
Missouri, St. Louis: President, Ruth M. Kahn, 507 So. Euclid Ave.
Nebraska, Nebraska-Western Iowa: President, Ethel Carlsen, Clarkson Hospital.
New York, Central New York (Syracuse): President, Louise L. Schwartz, University Hospital.
New York, Greater New York (N. Y. C.): President, Emma L. Feeney, 223 Willowby Ave., Brooklyn.
New York, Hudson Valley (Albany, Troy and Schenectady): President, Virginia H. Ray, Albany Hospital.
North Dakota, Minot: President, Ethel E. Casey, State Teachers College.
Ohio, Cincinnati: President, Ruth Sentiff, Bethesda Hospital.
Ohio, Cleveland: President, Mary T. Terry, City Hospital.
Ohio, Dayton: President, Alta Bolender, Miami Valley Hospital.
Pennsylvania, Philadelphia: President, Rose T. Baker, Philadelphia General Hospital.
Pennsylvania, Scranton: President, Dorothy O'Brien, Mercy Hospital.
Pennsylvania, Western Pennsylvania: President, Miss Dunkel, Children's Hospital, Pittsburgh.
Tennessee, Chattanooga-Hamilton Co.: President, Mrs. John E. Gilbreath, Red Cross Nutrition.
Texas, Dallas: President, Ruth Cooper, 4826 Worth St.
Virginia, Tidewater (Norfolk): President, Bertha E. Ide, Norfolk Protestant Hospital.
Wisconsin, Milwaukee: President, Nell C. Clausen, Milwaukee Children's Hospital.

At the meeting of The American Dietetic Association in Cincinnati in October, there will be an Affiliation Luncheon, held Wednesday, October 21st, at 12:30 at the Hotel Gibson.

Each affiliated association will be asked to send one official delegate, who will have power to vote on the problems which have arisen during

the past year. All other associations will be asked to send a representative to attend this luncheon, who will be asked to enter into the discussions.

The following problems will be discussed:

1. Whether or not all active members of an affiliated state association must be members of The American Dietetic Association by January, 1932.
2. If we insist that the members of all affiliated state organizations must be members of the national by 1932, should we insist that all national members in states where there is an affiliated state association automatically become members of the latter?
3. If national members in a state where there is an affiliated association automatically become members of that association, what plans of coöperation can be worked out whereby a member moving from one state to another can have her membership in the state association transferred without additional cost to her?
4. Progress made in groups of states organizing in sparsely settled communities, and problems arising from such plan of organization.
5. Problems presented in the collecting of national dues by the state treasurer of affiliated associations.
6. Discussion of some form used by the secretary and treasurer for sending names of members and dues to the national office.
7. Whether or not it is advisable to have the fiscal year of the state association correspond with that of the national, to simplify the collecting of dues, and keeping of records of members in good standing in both organizations.
8. What is the most satisfactory time of year for election of officers?
9. In case a person wishes to take a life membership in the national, how are they to go about it? Where will they pay their dues, and how will the state handle these people while they are paying national life membership dues?
10. Advantages of state associations organizing on the same plan of sections as the national.

Respectfully submitted,
ANNA E. BOLLER, *Chairman*,
Committee on Affiliation.

RECENT INFORMATION FROM THE DEPARTMENT OF AGRICULTURE

Indian plants point way to important latent food sources. A collection of the roots, herbs, and bulbs which the North American Indians used for food in the days before the white man came, and numbers of those which are still used by the Indians, was a feature of the Department's exhibit at the Thirteenth Exposition of Chemical Industries. Scientists of the department are convinced that many of these plants used by the abori-

gines contain valuable constituents which have been overlooked in our present-day civilization. We eat few plants which contain inulin, but the Indians and Chinese use much inulin, which is contained in certain bulbs, roots, and herbs. Some plants store inulin which bears approximately the same relation to the sugar levulose that starch bears to dextrose. The use of food containing levulose was once supposed by the medical profession to check the tendency toward diabetes. Some authorities on nutrition now consider inulin helpful in preventing diabetes. If this be true, the general use of a diet containing considerable amounts of inulin in place of starch is believed to have important possibilities.

The Bureau of Chemistry and Soils in Coöperation with the Bureau of Plant Industry will soon publish a list of one thousand indigenous uncultivated plants of North America and has already collected and analyzed more than one hundred different plants in order to determine their food and other values. Among the most interesting plants in the exhibit were the prairie potato or *psoralea esculenta*, which has a rather thick skin and is less susceptible to insect injury than the common variety of potato, and wild licorice, which contains a glucosidic compound, the active principle of licorice used in candies and in certain pharmaceuticals. Another is camas, which grows in the Northwest and has a very high inulin content. This plant was used extensively by the Indians for the production of sweet sirup and is still ground into a flour by the Klamath, Nez Perce, and Shoshone Indian tribes of Utah, Idaho, Oregon, and Washington.

The Federal Food and Drugs Act, popularly known as the Pure Food Law, was twenty-five years old on June 30. President Roosevelt signed the measure June 30, 1906, delegating its enforcement to the Bureau of Chemistry. The years immediately preceding and succeeding the passage of the pure food law were marked by an awakened public consciousness of the evils and malpractices of the time. Lincoln Steffens was exposing the same of misgovernment in large American cities. Upton Sinclair had written "The Jungle," pillorying the meat packers. Ida M. Tarbell was uncovering the cynicism and dishonesty of early Standard Oil operations. It was an age of exposure of unethical and demoralizing practices, and a wave of public indignation against the evils of food and drug manufacturing brought the Federal food and drugs act into being. Commercially packed foods had been usually adulterated, sometimes with dangerous chemicals, as ingredients of dyes and preservatives. So unethical were the practices of some food manufacturers

and dealers that the many honest producers had little opportunity of profiting by the sale of quality goods.

The twenty-five years since the passage of the food and drugs act have seen some of the most important developments that have ever occurred in the history of food and nutrition. The dietary habits of Americans have changed materially. The use of such foods as milk, sugar, vegetables, has increased greatly and the consumption of cereals has declined. Vitamins have assumed an important place in the thought of the consuming public and in the regulatory activities under the law of the Food and Drug Administration. So important, indeed, have they become that the Administration plans the establishment of a laboratory for the study of vitamins in order to make possible regulatory work in connection with products labeled as containing these important food elements. The twenty-five year period has witnessed pioneer work in the technic of processing fruits and vegetables, which has made possible material and beneficial reform in the methods of various food industries. There are still, however, in every industry a minority of dealers who, in order to make an unfair profit, take advantage of every opportunity to adulterate and misrepresent their products. Vigilance is ever necessary to protect consumers and to prevent a return to previous demoralizing trade conditions. The Administration's recently inaugurated radio campaign and its system of informing the public through the press, are designed to teach consumers how to read labels on food and drugs.

New Definitions of Food Products Adopted by Secretary of Agriculture

Dextrose is the product chiefly made by the hydrolysis of starch or a starch-containing substance, followed by processes of refining and crystallization.[2]

Anhydrous dextrose contains not less than 99.5 per cent of dextrose and not more than 0.5 per cent of moisture.

Hydrated dextrose contains not less than 90 per cent of dextrose and not more than 10 per cent of moisture, including water of crystallization.

Canned tomato juice is the unconcentrated, pasteurized product, consisting of the liquid with a substantial portion of the pulp, expressed from ripe tomatoes, with or without the application of heat; and with or without the addition of salt.

Whole wheat bread, entire wheat bread, graham bread, is the product,

[2] When derived from corn starch, dextrose is known commercially as Refined Corn Sugar.

in the form of loaves or smaller units, obtained by baking a leavened and kneaded mixture of whole wheat flour, water, salt, and yeast, with or without edible fat or oil, milk or a milk product, sugar and / or other fermentable carbohydrate substance. It may also contain diastatic and / or proteolytic ferments, and such minute amounts of unobjectionable salts as serve solely as yeast nutrients.[2] It contains, one hour or more after baking, not more than 38 per cent of moisture.

White bread is the product, in the form of loaves or smaller units, obtained by baking a leavened and kneaded mixture of flour, water, salt, and yeast, with or without edible fat or oil, milk or a milk product, sugar and / or other fermentable carbohydrate substance. It may also contain diastatic and / or proteolytic ferments and such minute amounts of unobjectionable salts as serve solely as yeast nutrients.[2] The flour ingredient may include not more than 3 per cent of other edible farinaceous substance. White bread contains, one hour or more after baking, not more than 38 per cent of moisture. The name "bread" unqualified is commonly understood to mean white bread.

Raisin bread is the product, in the form of loaves or smaller units, obtained by baking a leavened and kneaded mixture of flour, water, salt, yeast, and raisins, with or without edible fat or oil, milk or a milk product, sugar and / or other fermentable carbohydrate substance. It may contain diastatic and / or proteolytic ferments, and such minute amounts of unobjectionable salts as serve solely as yeast nutrients.[3] The flour ingredient may include not more than 3 per cent of other edible farinaceous substance. The finished product contains not less than 3 ounces of raisins to the pound.

Boston brown bread is the product, commonly in the form of cylindrical loaves, obtained by steaming or baking a leavened mixture of rye flour or meal, corn meal, a wheat flour, molasses, salt, water, and / or a milk product, with or without raisins. Leavening is commonly effected through the use of baking powder or sodium bicarbonate and sour milk.

Sorghum sirup is the sirup obtained by the clarification and concentration of the juice of the sugar sorghum and contains not more than 30 per cent of water, nor more than 6.25 per cent of ash calculated on a dry basis.

Packaged meats labeled with a U. S. Department of Agriculture certificate of quality are the latest innovation in the retailing of meats. Retail sales under this new system which is used by a group of food stores in

[3] The propriety of the use of minute quantities of oxidizing agents as enzyme activators is reserved for future consideration and without prejudice.

New York have been reported to department officials as having increased from twenty to forty per cent in individual stores. There are eighty-five stores in the group.

The meat is examined by a Government grader at a central plant where each whosesale cut is stamped with the appropriate "U. S." grade. Each cut is placed in a sanitary package, or carton covered with a transparent wrapper and a Government grade label is affixed so that the consumer may see at a glance the Government certificate of quality. The packages are then placed in a special refrigerated container and distributed among retail stores. This innovation is an extension of the beef grading and stamping service inaugurated by the Bureau of Agricultural Economics several years ago for the purpose of carrying the grade designation from packer to consumer.

New methods of testing fitness of potatoes for chip making are contained in Circular 158-C. A small, cylindrical portion of the potato is placed in a solution of picric acid made alkaline with sodium carbonate, heated for one minute, and the relative quantity of sugars judged by the redness of the solution. If the solution is deep red, it indicates a large quantity of soluble sugars, which is undesirable for potato chips, French frying and similar uses. A slight coloring indicates a small amount of soluble sugars and therefore a fitness for potato chip making. This method together with a color plate in the circular makes it possible to test and check the relative sugar content from the color samples. These illustrate the colors which were obtained in testing potatoes stored at temperatures from 32° to 70°F. It is well known that the lower the storage temperature within these limits and the longer the storage period, the greater the amount of soluble sugars present in the tuber.

The "market basket." The heart, liver, and kidney of beef, the liver of lamb, and the liver and heart of pork are inexpensive meats that should not be overlooked, says Dr. Hazel K. Stiebeling, food specialist of the Bureau of Home Economics. So much has been said recently regarding liver that the demand for calf liver has skyrocketed the price until it is now one of the most expensive meats on the market. Beef liver and hog liver are rich in vitamins and minerals and are sold anywhere from five to twenty-five cents a pound, depending chiefly on locality. Hog liver is better known in the South and is usually cheaper than beef liver. Like all pork products the hog liver must be well cooked. Recent experiments with it at the bureau demonstrated that it is much more palatable if scalded one-half to one minute before cooking. With this procedure it compares favorably with beef and calf liver. Either kind of liver may be

fried with or without bacon; scalloped with potatoes or rice; broiled; cooked in casserole; creamed with ham and served on toast or made into a loaf with rice.

Kidney is another meat seldom used which is richer than muscle meats in the vitamins which are indispensable to normal growth, help prevent bacterial infection of the respiratory system, and prevent beriberi and pellagra. Served in a stew, kidney makes a very nourishing main dish for a meal and in an omelet it is one of the foods for which Paris is justly famous.

Beef heart, owing to lack of demand, is not sold everywhere, but where it can be bought it ranges in price from twelve and a half to twenty cents a pound. Beef heart may be stuffed with savory dressing and baked; its flavor is excellent.

Dr. Stiebeling emphasizes that liver is often cooked too long and at too high a temperature. She suggests steaming or boiling it for young children. Older children may have sandwiches filled with chopped cooked liver, mixed with celery or a little lemon juice and seasoned with salt. She advocates liver in small amounts three or four times a month for children and perhaps twice for adults.

BOOK REVIEWS

The Vitamins. Second Edition. By H. C. Sherman and S. L. Smith. Price $6.00. New York: Chemical Catalog Company, 1931, pp. 575.

One can turn to this volume with an assurance that the much discussed subject of the vitamins will be treated in the same authoritative and judicious manner that has characterized the works of Sherman and his collaborators in the past. From the maze of information available the authors have selected and summarized facts regarding the chemical natures of the individual vitamins, their rôles in life processes, their formation and distribution in nature and their relative abundance in different types of food material, and their stability under conditions to which these are likely to be subjected. A bibliography of 182 pages, by which the reader may be guided to practically all of the important contributions up to the middle of 1930, is sufficient indication of the completeness of citation of publications concerning the vitamins.

The subject has been treated with the interests of all probable readers in view, emphasizing the physiological, pathological, nutritional and health aspects as well as the factors appealing to professional chemists. The epoch-making discoveries of the last two decades in those remarkable physiological potencies known as vitamins are now available in a well organized, concise form. This book should join the small and select family of tried and true reference and text books in the professional library of every well informed dietitian.

MARY P. HUDDLESON.

Practical Dietetics. Eighteenth Edition. By Alida Frances Pattee. Price $2.75. Mt. Vernon: A. F. Pattee, 1931.

Pattee's "Practical Dietetics" now may be had in an attractive dark blue jacket. The book, however, is still available in the familiar and easily recognized blue and white cover for those who prefer it. This last edition is completely rewritten and reset and presents much of the new theory and modern practice of many noted food authorities.

One cannot do better than refer to the favorable review given in the June 29, 1930, issue of the *Journal of the American Medical Association*, which states "that among reference books on diet it is perhaps the most complete available." Miss Pattee has consulted specialists of note in order to secure the latest clinical and research data on diseases treated by diet therapy. She has first treated the subject of diets in general, then has applied available data to a study of the specific diet at hand.

The tables for use in nephritic and diabetic diets are indeed useful and one is attracted by the recipes with food values attached.

The numerous and practical recipes and suggestions for use of liver in pernicious anemia materially assist in making an otherwise monotonous diet more interesting.

The very comprehensive general food tables, making use of 100 gram portions and average servings, are excellent reference material and show an appreciation of the most recent trends in food work.

The eighteenth edition is excellent and presents the subject matter in a logical, readable and comprehensive manner. It is a valuable contribution to the field of dietetics.

E. L. FEENEY.

Handbook of Diseases of Children, including Dietetics and the Common Fevers. Price $3.50. New York: William Wood and Company, 1931, pp. 290.

This little volume presents in concise form a complete account of the disorders of infancy and childhood. The format is attrac-

tive and the book is well illustrated throughout. While intended as a handbook for the undergraduate medical student, it is sufficiently complete in its inclusion of the rarer conditions to meet the needs of those seeking a finished summary of the diseases of childhood.

The chapters on diseases of the alimentary system and disorders of the endocrine glands, nutrition and metabolism will be of especial interest to dietitians.

The chapter on Infant Welfare and Dietetics outlines briefly the characteristics and development of the "normal infant." The milestones in the development of coördination in the central nervous system receive attention in an earlier chapter. The book concludes with the requirements for successful breast and artificial feeding.

Clinical Dietetics. By Harry Gauss. Price $8.00. St. Louis: C. V. Mosby Company, 1931, pp. 490.

This book is based on lectures in clinical dietetics given by the author at the Medical School of the University of Colorado. According to the preface, Dr. Gauss has presented these lectures in detailed form and has selected as material for discussion, only those diets for which a rational basis exists. The author divides his interesting historical introduction to dietetics into the "Empiric Age" and the "Rational Age." We are now in the latter period. A helpful discussion of the Jewish dietary laws is included in this chapter.

The needs of three groups are considered: medical students and student dietitians; hospital dietitians; and the patient himself, for whom an arrangement in simplified form is given. The medical and biochemical aspects are sufficiently discussed, with case reports to facilitate teaching.

Now that fashions seem to be momentarily changing regarding graham and whole wheat bread, and diets with residue for normal individuals, it is pleasant to find Dr. Gauss mildly supporting "roughage" against the somewhat excited onslaught of the smooth-dieters, at the same time dedicating his book to the memory of Dr. Sippy.

The book is written in an interesting, informal style and should appeal to dietitians especially, since it is the first volume of its kind to have a dietitian as co-author. It is to be hoped that certain typographical errors will be corrected in future editions.

M. P. H.

Infant Feeding in General Practice. By J. V. C. Braithwaite. Price $1.75. New York: William Wood and Company, 1930, pp. 140.

This book presents its subject from the point of view of the general practitioner and discusses the question of breast and artificial feeding, and nutritional disorders of infants, concluding with recipes and formulas in vogue in England.

CURRENT LITERATURE

KATHLEEN M. LEWIS

American Journal of Diseases of Children

Vol. 41, April, 1931

Nephritis in children: prognosis and differential diagnosis. C. A. Aldrich.—p. 766.

Excessive ultraviolet irradiation: effect on the nutrition and the endocrine glands of rats. A. F. Hess.—p. 775.

Vol. 41, May, 1931

Effect of elementary phosphorous in rickets. A. F. Hess.—p. 1081.

Dried powdered milk preparations used in the feeding of infants: a bacteriologic study. J. Giblin and J. H. von Pourtales.—p. 1100.

American Journal of Physiology

Vol. 97, May, 1931

* The effect of different per cents of protein in the diet. Reproduction. J. R. Slomaker.—p. 332.

Vol. 97, June, 1931

Further studies on the composition of saliva in different phases of the secretion. H. Baxter.—p. 450.

* The influence of varying amounts of carbohydrate, fat, protein and water on the weight loss of hogs in under-nutrition. R. W. Keeton, H. MacKenzie, S. Olson and L. Pickens.—p. 473.

The effect of different per cents of protein in the diet. Reproduction.

The results show that a diet containing between fourteen and eighteen per cent protein would result in greatest efficiency, and that the greater gains in body weight occurred when the diets contained large per cents of protein for the growing period.

The influence of varying amounts of carbohydrate, fat, protein, and water on the weight loss of hogs in under-nutrition. It was found that mature hogs on basal rations maintain their weight and that the nitrogen balance is positive with a tendency to storing of nitrogen. With the rations thirty per cent below basal requirements a negative nitrogen balance and a loss in weight developed. With a ration twenty per cent below requirements the hogs maintained nitrogen balance but lost weight. A sub-maintenance ration, twenty per cent below basal requirements and varying the carbohydrate, fat, protein and water intake, was given. In all the variations the weight loss was at the same rate.

American Journal of Public Health

Vol. 21, May, 1931

Public health control of infectious abortion in certified milk. K. F. Meyers.—p. 503.

Further studies on Brucella abortus in certified milk. D. E. Hasley.—p. 515.

* A study of the epidemiology of undulant fever. H. E. Hasseltine.—p. 519.

Vol. 21, July, 1931

* Iodine in nutrition. W. Weston.—p. 715.

Newer knowledge on botulism and mussel poisoning. K. F. Meyer.—p. 762.

A study of the epidemiology of undulant fever. Since 1919 the number of cases of undulant fever has doubled that of the previous year. It is found in every state of the union; the approximate occurrence in the United States is two per 100,000. There is no decided seasonal distribution, but there tends to be an increase gradually from January to September with a slight drop in August, and a decrease from October to December. Low incidence of the disease in children occurs, with an increase at adolescence and early adult life. The ratio of occurrence is three males to one female. There is generally only one case in a household. There are three epidemiological groups: (1) those having little or no contact with livestock or carcasses (milk); (2) those in contact with livestock or carcasses in meat industry (meat); and (3) those having contact with livestock on farm (farm). Of 435 cases, 198 cases were in the milk group (54 per cent males and 48 per cent females);

the meat group consisted of 44 cases (98 per cent males and 2 per cent females); the farm group had 193 cases (95 per cent males and 5 per cent females). Approximately 45 per cent of the cases are attributed to milk contact and 58 per cent to contact with infected animals. The diagnosis of undulant fever should depend not only on the agglutination test, but also on clinical symptoms, serological and, if possible, cultural tests.

Iodine in nutrition. The amount of iodine in the body varies according to sex, age, season and locality. The average amount of iodine in the body is fifty-one milligrams in the musculature, ten milligrams in the thyroid, and the remainder in the spleen, suprarenals, salivary glands, bones and skin. Luade and Class give the normal requirement of iodine for metabolism as 0.05 milligram per day. Weston thinks one-tenth of this amount sufficient to prevent or cure incipient endemic goitre.

The physiological functions of iodine in nutrition are: (1) furnishes important element which enables thyroid glands to synthesize thyroxin; (2) sufficient iodine in diet of mother increases weight and growth of young; (3) influences reproduction; (4) deficiency results in goitre, frigidity, sterility and frequent miscarriage; and (5) lack over several generations results in birth of feeble minded children and congenital idiots, and myxedema in adults. Luade and Fellenberg believe that the body is always in iodine equilibrium.

High fat or protein diet, or both, interfere with utilization of iodine. Organic iodine seems best utilized by the body because it is bound up in the food stuffs and is set free slowly.

American Restaurant Magazine

Vol. 14, May, 1931

Hans Vaterland—Germany's cosmopolitan restaurant. F. Swanson.—p. 38.
* Training at the university level. H. C. Siekman.—p. 41.
Proper receiving of food. R. H. Grinstead.—p. 45.
Should menu prices be reduced? J. U. Kalez.—p. 47.
Market conditions. H. R. White.—p. 57.

Vol. 14, June, 1931

* Why we do all our own baking. F. Bradshaw.—p. 31.
What about adjusting your menu prices? J. O. Mills.—p. 36.
Seven restaurant menus for June. H. Ewing.—p. 42.
Market conditions. H. R. White.—p. 60.

Vol. 14, July, 1931

They're urging the public to eat more. H. C. Siekman.—p. 30.
* Fighting the menace of spoilage. J. A. J. Jones.—p. 32.
Market conditions. H. R. White.—p. 40.

Training at the university level. Student dietitians are now serving a certain definite period of time in restaurant work. The "eating out habit" has been greatly stimulated by the introduction of a higher type employee in restaurants. This has brought a new atmosphere into the restaurant, and employees have demonstrated a new sense of responsibility in their work. Progressive restaurant operators have come to a more widespread realization of the fact that those insufficiently trained cannot serve food properly. To be a successful executive one must be equipped with both a theoretical and practical training at high levels. Initiative, ability to organize, efficient methods and the capacity to accomplish duties in order and on time are attributes to be emphasized in the training of prospective restaurant employees.

Why we do all our own baking. Baking dainty cakes, rolls, etc., increases the afternoon tea business of restaurants. It is one of the best business builders and advertisements. A patron may also desire to purchase and carry something home similar to that which he has greatly enjoyed while eating in a restaurant, if such service is available. Out of the number of restaurants considered: 92 per cent bake their own pies; 82 per cent bake their own muffins; 88 per cent bake their own cakes; 74 per cent bake their own pastry; 70 per cent bake their own rolls and cookies; and 34 per cent bake their own bread.

Fighting the menace of "spoilage." It has been estimated that the loss from spoilage

would probably amount to over ninety million dollars, with seventy-five per cent of the loss preventable. The first place to look for at least a portion of this loss is in the refrigerator box itself. Insulation, circulation, even temperature, and the number of boxes maintained are essentials to be considered.

Archives of Pediatrics

Vol. 48, April, 1931

The teaching of infant feeding: past and present. R. H. Dennett.—p. 226.

* Powdered ripe banana in infant feeding. S. V. Haas.—p. 248.

Vol. 48, May, 1931

* Lactose: the sugar of choice in infant feeding. E. B. Hardisty.—p. 309.

Treatment of celiac disease without the use of cow's milk. C. G. Kerley.—p. 326.

Powdered ripe banana in infant feeding. The good results attending the use of ripe banana in celiac disease were duplicated in infants suffering from carbohydrate intolerance. Bananas, powdered, remove the difficulty in feeding bananas to bottle fed babies. The powder resembles banana in appearance and flavor. It contains vitamin A, B and C, and forms a complete diet with milk. It changes the intestinal flora from grams positive to grams negative, and contains an enzyme capable of converting cane sugar to an invert sugar. It is well tolerated by infants during the first weeks of life. There is a marked acceleration of growth in length, although the weight is not influenced. The infants are "ruddy, firm and content." The teeth are good.

Lactose: the sugar of choice in infant feeding. Lactose is the only form of sugar present in mother's milk. Carbohydrates play a most important part in the artificial feeding of infants since they supply the necessary calories not supplied by proteins and fat, and are necessary to prevent the formation of ketone acids. Mother's milk contains one and one-half times as much lactose as cow's milk. The sole carbohydrate of all milk is milk sugar. No intolerance towards lactose was noted in clinical manifestations. The tissues of the children seemed more firm than those of average children receiving vegetable sugar, and resembled breast fed infants. The children do not lose weight during an intercurrent infection, but merely fail to gain.

Hospital Topics and Buyer

Vol. 9, April, 1931

Nursing the much neglected convalescent. M. W. Binner.—p. 22.

* Should the dietitian buy on contract? A. E. Boller.—p. 36.

Vol. 9, May, 1931

Central refrigeration. R. M. Hueston.—p. 32.

* The psychology of food service. A. E. Boller.—p. 50.

Vol. 9, June, 1931

Serving 6,500 meals daily. A. E. Boller.—p. 70.

Should the dietitian buy on contract? The dietitian who is asking herself whether to place a future contract or not will find it greatly to her advantage to do so. Fluctuating prices, unreliable labeling, deterioration of vitamin and minerals, non-uniformity of product, and all disadvantages that may accompany spot buying are overcome. In their place comes the greatest economy in price, but more important the assurance of uniformly high quality. The dietitian should compare samples and make her decision from the observation of the products presented.

The psychology of food service. One of the chief problems of the dietitian is to make the patient want to eat his food. A patient whose appetite is poor has less desire to eat if his food is forced upon him and he is told that he must eat it. It is much better to determine his preferences among several dishes and in this way a receptive attitude toward some one dish he might be willing to try might be built up. It is not always possible to meet every whim of the patient, but one thing is possible, the right psychological approach which makes the patient want to eat what is served him.

Hotel Bulletin

Vol. 5, May, 1931

Gastronomy and its social influence. J. G. Gazabat.—p. 466.

* Kitchen hints and secrets. P. Russo —p. 470.

Vol. 6, June, 1931

* What shall we do about apprentices for our American kitchens? C. Scotto.—p. 543.
Looking at the cuisine from its economical standpoint. J. L. Gazabat.—p. 545.
* Dining room revenue can best be maintained through building prestige. H. G. Sisson.—p. 225.
Attractive honey specialties that will meet the demand for something new. H. E. Barnard and M. D. Fischer.—p. 260.
Cafeteria equipment that makes for economy. M. Wharton.—p. 262.

Vol. 6, July, 1931

Portable cafeteria counters allow quick change to table service at night. C. M. Dahl.—p. 6.

Kitchen hints and secrets. The kitchen lore of the old countries offers many useful bits of wisdom. England stands foremost in the art of roasting and boiling meats. France takes the lead in soup and sauces. Germany and Austria are prize bakers of bread, cake and pastry. Italy and Hungary excel in fancy desserts and confectionery. Norway and Sweden seem to know how to do everything in the cleverest way. Foreign cooks use little salt and pepper compared with Americans. Soup is most important for the utilization of many leftovers, as well as being nourishing and satisfying. A "plain" cook should know how to boil, bake, fry and broil. A "fancy" cook is supposed to know how to lard meat, to bone fowl, whip cream, make good mayonnaise, croquettes, stocks and ices.

What shall we do about apprentices for our American kitchens? Europe has three different forms of apprenticeship: first, the apprenticeship as we know it and which is always practiced in Europe; second, the learnship, differing from the apprenticeship because the learner with the tacit or implied understanding of the employer is only trying to learn some particular branch of the trade; third the up-grading, which is the one that is most practiced in our American kitchens and indicates that those who have worked with skilled men, may be in time up-graded to the rank of skilled. In many foreign countries apprenticeship comes under legal regulations. In the United States it has passed out of existence. Wages paid to apprentices are generally below those of boys who are not employed under a definite training system. Many employers are beginning to realize that it is worth their while to adopt more scientific methods based upon vocational selection, according to industrial fitness and promise, or involving educational or vocational tests.

Dining room revenue can best be maintained through building prestige. Is eating a luxury that should be enjoyed, merely a necessity that must be tolerated, or is it a sort of service characterized by the counting of calories and the tabulation of vitamins? Tersely stated, the problem is this—to maintain satisfactory dining room revenue in the face of a diminished appreciation of elegance in eating, combined with an awakened sense of thrift on the part of the manager. This may be gained by reasonable price, tasty decorations, personal contacts (based on high personal efficiency) and carefully trained employees. But above all, no matter how attractive the restaurant, how excellent the service, the most important work is done in the kitchens.

Hotel Monthly

Vol. 39, May, 1931

The Netherland Plaza, Cincinnati.—p. 27.
June menu suggestions. A. Shircliffe.—p. 74.

Vol. 39, June, 1931

Obey that impulse. H. V. Heldenbrand.—p. 26.
Cornell's 1931 summer course. H. B. Meek.—p. 57.
Shircliffe's July menu suggestions. A. Shircliffe.—p. 75.

Journal American Medical Association

Vol. 96, April 25, 1931

Addison-Biermer's anemia. I. W. Held.—p. 1361.
Prevention of rickets by viosterol 100-D. E. W. May.—p. 1376.
Food versus sunlight. Editorial.—p. 1402.

Vol. 96, May 2, 1931

* Insulin in malnutrition. R. D. Metz.—p. 1456.
The salivary glands and the mechanism of thirst. Editorial.—p. 1506.
Vitamins and the digestibility of food. Current Comment.—p. 1507.

Vol. 96, May 9, 1931

Functional albuminia. R. S. Palmer.—p. 1559.
* Innocent glycosuria. H. C. Powelson and R. M. Wilder.—p. 1562.

Vol. 96, May 16, 1931

Pathology of sickle-cell anemia. W. M. Yates and M. Mollari.—p. 1671.

Vol. 96, June 6, 1931

* A system of weighed high carbohydrate diets for diabetes. J. J. Short.—p. 1940.

National overweight. Editorial.—p. 1954.

Vol. 96, June 13, 1931

Loss of bone salts in scurvy. Editorial.—p. 2038.

Cookery and digestibility. Editorial.—p. 2038.

Vol. 96, June 20, 1931

Heat production after the ingestion of protein. Editorial.—p. 2106.

Dehydration and the insensible loss of weight. Editorial.—p. 2106.

Green leaves and vitamin A.—Editorial.—p. 2107.

The nutrition of the rat and the protein level. Current Comment.—p. 2108.

Vol. 96, June 27, 1931

* Carotinemia resulting from restricted diet as observed in dermatologic practice. O. L. Levin and S. H. Silvers.—p. 2190.

Insulin in malnutrition. Increase in weight is brought about through the use of insulin in persons with apparently intact carbohydrate metabolism. The uses of insulin are now being realized and it will only be a question of time before it becomes as useful for the nondiabetic as the diabetic. It is thought that insulin brings about a more rapid oxidation of part of the sugar and the other part is more quickly changed into glycogen. In the tissues, insulin brings about a change of carbohydrate into fat and increases the fat in the muscles. Insulin increases the hydration capacity of the tissues. The digestive tract is stimulated by its use. At first the dosage is small and then gradually increased. Along with the gain in weight there is a general improvement as a result of readjusted metabolism.

Innocent glycosuria. Mild glycosuria presents no definite symptoms. In contrast to diabetes mellitus, patients lose weight and strength when given regular insulin treatment, and gain in weight and strength when restrictions are removed. This was shown in a study of ninety-one cases of mild glycosuria after patients had fasted twelve to sixteen hours and were then given one hundred grams of glucose with 50 cc. of water by mouth. Samples of venous blood and urine showed no sugar when Benedict tests were given, yet these patients were taking treatment for diabetes mellitus. Tardy mobilization of the mechanism for utilizing sugar is seen in alimentary glycosuria and such conditions should be treated as diabetes mellitus until the patient is proved innocent of such. Diabetes *innocens* usually results in continuous glycosuria.

A system of weighted high carbohydrate diets for diabetes. In the summer of 1928, preliminary observations were made on the use of relatively high carbohydrate-fat ratios following the report of Sansum's encouraging experiences. The results were so promising as to encourage continued use of such ratios. The arrangement is the same as that of Mosenthal's in the preparation of diabetic bases on Woodyatt formulas. The daily distribution of carbohydrate, protein and fat is:

	Breakfast *grams*	Dinner *grams*	Supper *grams*
Carbohydrate...	40	30	30
Protein.....	10	40	35
Fat.....	30	50	40

It is believed that the higher carbohydrate-fat ratios possess many distinct advantages and will become increasingly popular with diabetic specialists as time goes on.

Carotinemia resulting from restricted diet as observed in dermatologic practice. Carotinemia is due to carotene, an exogenous pigment of dietary origin. This pigment is abundant in nature and occurs in many common foods such as carrots, pumpkins, yellow squash, yellow turnips, parsnips, spinach, lettuce, green and yellow beans, kale, oranges and eggs. Butter fat also contains carotene. The diet producing carotinemia is essentially vegetarian. The pigment passes through the stomach unchanged and is absorbed in the small intestine. The horny layers of the skin contain more of the pigment. Diagnosis of carotinemia shows a yellowish to deep orange color, while jaundice shows a brownish to greenish tint. Jaundice affects the sclera

and is more localized in the plasma. Aside from the pigmentation there are no subjective or objective symptoms in carotinemia.

Journal of Biological Chemistry

Vol. 91, April, 1931

* The inability of metals other than copper to supplement iron in curing the nutritional anemia of rats. F. A. Underhill, J. M. Orten and R. C. Lewis.—p. 13.

Hydrogen ion concentration and acid-base equilibrium in normal pregnancy. D. M. Kydd.—p. 63.

* Dietary requirements for fertility and lactation. The specific effect of vitamin B on lactation. B. Sure and D. J. Walker.—p. 69.

* The unsaponifiable lipids of lettuce. Carotene. H. S. Olcovich and H. A. Mattill.—p. 105.

* The association of vitamin A with greenness in plant tissue. Vitamin A content of asparagus grown under light of various qualities. J. W. Crist and M. Dye.—p. 127.

Composition of bone. Mechanism of healing in low phosphorous rickets. B. Kramer, M. J. Shear and J. Seigel.—p. 271.

Vol. 91, May, 1931

* Further investigation of quantitative measurement of vitamin A values. H. C. Sherman and E. L. Batchelder.—p. 505.

The metabolic rate and respiratory quotients of rats on a fat-deficient diet. L. G. Wesson and G. O. Burr.—p. 525.

A study of certain properties of the provitamin A. E. J. Quinn and J. G. Hartley.—p. 633.

Metabolism of women during the reproductive cycle. Calcium and phosphorous utilization in late lactation and during subsequent reproductive rest. E. Donelson, B. Nims, H. A. Hunscher and I. G. Macy.—p. 675.

* Nutritive value of potato protein and of gelatin. D. B. Jones and E. M. Nelson.—p. 705.

The comparative antirachitic and calcifying properties of irradiated milk and milk derivatives. G. C. Supplee, G. E. Flanigan, O. J. Kahlenberg and A. F. Hess.—p. 773.

Vol. 91, June, 1931

* Studies on the effects of overdosage of vitamin D. R. F. Light, G. E. Miller and C. N. Fray.—p. 47

The analysis of whole blood. The precipitation of the proteins. S. R. Benedict.—p. 135.

The analysis of whole blood. The determination of sugar and of saccharoids. S. R. Benedict.—p. 141.

The analysis of whole blood. Determination and distribution of uric acid. S. R. Benedict.—p. 147.

The inability of metals other than copper to supplement iron in curing the nutritional anemia of rats. A glass cage for use in the study of metals in nutritional anemia of the rat was designed so that the animals could not come in contact with anything except glass, yet could have the ventilation and exercise afforded by wire cages. Nutritional anemia was successfully produced in the first generation of rats by a diet of liquid whole milk only, through the entire experimental period. It was found that purified iron alone was ineffective in preventing or curing the anemia of the control animals, also that cobalt, nickle, zinc and manganese, as supplements to iron, failed to give the desired results. Copper alone, of all the metals studied, has the ability to supplement iron in curing the nutritional anemia of rats.

Dietary requirements for fertility and lactation. The specific effect of vitamin B on lactation. One group or rats was fed a diet rich in vitamin B and another a diet deficient in this vitamin. All rats were litter mates. The mothers were restricted to the same daily amounts of food and water intake as were consumed by the lactating rats receiving the vitamin B deficient ration. With the plane of nutrition kept constant, any improvement in the lactation performance of the latter group must necessarily be credited to the specific influence of vitamin B. On the fifteenth day of lactation, with a diet rich in vitamin B, the female was still rearing her litter of five out of six, while the female on the same plane, but on a vitamin B deficient ration, had considerable infant mortality. It was concluded that vitamin B, in addition to influencing food consumption, plays a specific rôle in lactation, unrelated to the plane of nutrition.

The unsaponifiable lipids of lettuce. Carotene. The authors record a few observations upon the properties of carotene and present further proof of the vitamin A activity of this substance obtained from another vegetable source—lettuce. Under widely differing conditions the growth produced by feeding carotene seems to be directly proportional to the amount fed. 0.0005 mg. permits a gain of three to five grams in weight of rats deprived of vitamin A.

The association of vitamin A with greenness in plant tissue. Vitamin A content of asparagus grown under light of various qualities. Only tips of asparagus plants which had had equal exposure to light were used. Within restriction of the two variables expressed by some non-linear relationship the chlorophyll content is a limiting factor on the vitamin A synthesis in the vegetative parts of the plants.

Further investigation of quantitative measurement of vitamin A values. Graded enlargements in the amounts of vitamin A fed in the form of whole milk powder cause even greater increases in the survival (at low levels of feeding) and in rate of gain of weight (at higher levels) than previous experiments have shown. Nine or more carefully standardized experimental animals were employed at each of the various levels of feeding which induced a gain in weight of about three grams per week, a decrease of twenty-five per cent, or an increase of thirty-three per cent.

Nutritive value of potato protein and of gelatin. Metabolism experiments have shown that potatoes, either steamed, baked, or mixed with fat, have high nutritive value. Potato nitrogen is important in replacing daily loss, but due to its low level, rather than its quality, is insufficient for growth. Tubein, the isolated potato protein, when supplemented with yeast extract gave satisfactory results for growth when fed to rats. When a potato preparation, with much starch and crude fibre eliminated, was fed there was no increase in growth, although tryptophane, lysine, and amino acids lacking in gelatine were added. When gliadin and casein wholly or partially replaced gelatin, maintenance and repair resulted, showing that in the potato preparation there was a dietary factor missing which was present in casein and lactalbumin. It is suggested that some hitherto unidentified amino acid is present in potato and lacking in the preparation, either destroyed by enzymatic action or some chemical disturbance. A twenty per cent solution of this potato preparation, used as a sole source of vitamin B and C gave better results than when yeast extract was used.

Studies on the effects of overdosage of vitamin D. It has been proved that extreme overdosage of vitamin D has a peculiar action on the mineral metabolism of white rats, an increasing overdosage causing a progressive decrease in ash of bones. Similar experiments have shown that a low calcium and phosphorous balance, in some cases negative, with low bone ash, has resulted. Some cases have been reported showing the occurrence of hypercalcemia. Experimentally it has been proved that a moderate overdosage of vitamin D daily has no effect on the mineral metabolism of white rats of the third and fourth generations; no pathological calcification occurred and the bone ash was normal. If animals received a moderate overdosage of vitamin D for a long period they become more susceptible to excessive overdosage (just insufficient to produce toxic symptoms) in the first and second generation; if given for a long period of time striking pathological changes are produced in the third and fourth generations.

Journal of Home Economics

Vol. 23, May, 1931

Thermal efficiency of surface units in electric ranges. V. W. Swartz.—p. 459.

Speed and efficiency of oven utensils. B. Cornell and V. W. Swartz.—p. 464.

Fuel economy of triplicate pans. W. V. Swartz and G. Jones.—p. 467.

Vol. 23, June, 1931

The proposed reclassification of dietitians in the federal service. L. B. Storms.—p. 551.

* Penetrometer measurements of "doneness" in cooked vegetables. M. D. Sweetman and M. C. Lancaster.—p. 565.

Penetrometer measurements of "doneness" in cooked vegetables. "Doneness" as the term is used in cooking refers to a stage of transformation considered an end point for the particular processing of food involved. Standardization and measurement of doneness are essential in any experimental work on cooked foods as well as in any study of the efficiency of cooking equipment. A penetrometer manufactured for the commercial

testing of greases and other material has been found useful for such tests. This instrument measures the distance of penetration of a needle in tenths of millemeters under weight which may be varied and during periods of time which may be controlled. The data secured point toward significant differences between samples of potatoes in the speed and evenness with which they cook, while at the same time the results furnish a measure of "doneness" which checks with hand tests, but is more finely graded.

Journal of Nutrition

Vol. 4, May, 1931

* Studies in calcium and phosphorus metabolism. The calculation of acid base content of the diet. W. T. Salter, C. Fulton and F. Angier.—p. 1.
* Influence of the state of hydration of the body on the insensible loss of weight in children. R. C. Manchester, C. Husted and I. McQuarrie.—p. 39.
* Growth and reproduction on milk diets. J. Waddell, H. Steenbock and E. B. Hart.—p. 53.
Male sterility on milk diets. J. Waddell.—p. 67.
Vitamin E in iron treated dry rations. J. Waddell and H. Steenbock.—p. 79.
* Utilization by normal adult subjects of the calcium and phosphorus in raw milk and in ice cream. M. M. Kramer, M. T. Potter and I. Gillum.—p. 105.
The vitamin B and G requirements of lactation. D. L. Hussemann and R. A. Hetler.—p. 127.

Studies in calcium and phosphorus metabolism. The calculation of acid base content of the diet. The important factors in the study of electrolyte metabolism are intake, absorption from intestinal tract, and effect of absorption upon excretion, both of recently ingested and previously stored electrolytes. The alkalinity or acidity of the urine normally is determined by inorganic constituents of the food, except in cases of certain fruits yielding organic acids. Calculation of potential acidity of the acid can be made by summating the base forming elements, i.e., Ca, Mg, Na, and K, as N-alkali, and the inorganic acid forming elements, i.e., Cl, S, P, in terms of N-acid. Differences between these sums give the potential acidity or alkalinity of the test. This calculation cannot be accurate because of the variance of food. Another uncertain factor in computing acid-base balance is the production of organic acids. Because of the uncertainty which attends bowel activity, such calculations furnish only a basis for interpreting changes in excretion with quantitative variation from a constantly combined "control diet." If the diet consists of a few simple ingredients it is easier to calculate the acid-base balance.

Influence of the state of hydration of the body on the insensible loss of weight in children. Experiments were made on five children ranging in age from 9 to 16 years. In a normal state of hydration, there is a close parallelism between the insensible loss and the energy metabolism. Degrees of dehydration are not followed by significant alterations in the metabolic rate. Dehydration, whether produced by a ketogenic diet alone, by restriction of water intake on a variety of diets, or by a marked diuresis, resulted in a significant decrease in the insensible perspiration. Increase in the insensible loss was consistently found to occur when large amounts of distilled water were given with a cream and sugar diet. The results of these experiments demonstrate the necessity for having tissues in a normal state of hydration where the insensible loss method is used for estimating the total energy metabolism.

Growth and reproduction on milk diets. The results indicate that milk, even though supplemented with copper and iron is still not a perfect food. On a diet of whole milk, iron and copper, no anemia was observed, but growth and reproduction were subnormal. The rearing of young was poor, due to poor mammary secretion. On a diet of whole milk and copper, a chronic anemia, due to the low iron intake, was observed. Growth and reproduction were below normal. Living young were produced, but many were not nursed and those that were suckled grew slowly. Third generations were secured. Subnormal reproduction was due to late sexual maturity and very poor ovulation. Small additions of manganese and iodine, or both, greatly improve the ovulation rhythm. No evidence of lack of

vitamin E was noted in the females on the milk diet.

Utilization by normal adult subjects of the calcium and phosphorus in raw milk and in ice cream. A metabolism study was made to compare the utilization by ten normal adult subjects of the calcium and phosphorus in raw milk and ice cream. The diet was somewhat acid-forming. Five of the subjects received ultra-violet irradiations daily. No special advantages in the utilization of calcium and phosphorus seemed to be conferred upon those subjects who received ultra-violet irradiations throughout the eighteen days of the experiment. Four of the non-irradiated and three of the irradiated subjects showed more favorable calcium balances when ice cream was the main source of calcium. Normal adult subjects on an acid-forming diet utilized the calcium from ice cream made with condensed milk at least as well as the calcium of raw milk. The phosphorus balances followed the trend of the calcium balance figures.

Modern Hospital

Vol. 36, May, 1931

* The importance of training hospital employees. L. J. Frank.—p. 59.

The consulting dietitian and her value to the hospital. F. T. Proudfit.—p. 128.

Vol. 36, June, 1931

Who should supervise the milk laboratory? R. A. Perkins.—p. 77.

* The return of the salad age. A. Shircliffe.—p. 1321.

Vol. 37, July, 1931

Training future executives by the preceptor method. J. J. Golub.—p. 64.

Treating nutritional anemia. H. S. Mitchell.—p. 126,

The importance of training hospital employees. Because the public so often judges an institution by the way in which they are received, the employees should be trained in the manner of giving directions and correct information.

The return of the salad age. An interesting history of the evolution of salads is given, including some new, modern and delicious recipes.

NEWS NOTES

American Home Economics Association. Seventeen hundred persons were registered at the twenty-fourth annual meeting of the American Home Economics Association held in Detroit, Michigan, June 22 to 27, 1931. The central theme of the meeting, "The Rôle of the Home in Individual and Family Development" was discussed from the standpoint of the factors contributing to individual and family growth. Speakers at the general sessions included Honorable Wilbur M. Brucker, governor of the State of Michigan, Mr. Frank W. Cody, superintendent of city schools, Detroit, Mr. F. J. Kelly, chairman of the Education Section of the White House Conference on Child Health and Protection, Mr. William Lyon Phelps, Lampson Professor of English Language and Literature, Yale University and Mr. Royal B. Farnum, education director, Rhode Island School of Design. Each speaker presented the thesis of the home as the vital social unit in community or national life.

Newly elected officers are: president, Miss Frances Swain, supervisor of home economics in the Chicago Public Schools, re-elected; vice-president, Miss Margaret Edwards, director of school of home economics, Alabama College; secretary, Dr. Marie Dye, dean of home economics, Michigan State Agricultural College; councilor at large, Dr. Henrietta Calvin, supervisor of home economics, Philadelphia Public Schools; controller, Miss S. Agnes Donham, specialist in income management, Boston, Massachusetts; treasurer, Mr. H. Gale Turpin, Baltimore Trust Company, Baltimore, Maryland.

The 1932 meeting will be held in Atlanta, Georgia, the week of June 20.

The Illinois, Indiana and Wisconsin Hospital Associations held a joint meeting May 13, 14, and 15, at the Hotel Sherman in Chicago. Of particular interest to members of our Association was the address given by S. Margaret Gillam on "What Constitutes an Efficient Food Service in a Hospital." The discussion of this paper was opened by Leota E. West, dietitian of the Ravenswood Hospital, Chicago.

The Western Hospital Association. At the recent convention, the following papers were presented before the Dietetic Section with Elizabeth Hayward, President of the California Dietetic Association, presiding: "Present and Future Food Situation in the United States," Alonzo E. Taylor, Food Research Institute, Stanford University; "Some of the Newer Developments in Experimental Nutrition," Ruth Okey, Ph.D., University of California; "The Dietitian's Place in the Hospital," Nina Simmonds Estill, former Associate Professor of Chemical Hygiene, Johns Hopkins University; "New Facts about Cheese," Mary Dahnke, Kraft Cheese Company; "Guides in Buying for the Inexperienced Dietitian," Alfred Kincaid, Cottage Hospital; "Cooking for Profit," E. G. Fulton, Glendale Hospital and Sanitarium; "Buying and Handling Glasses and Silver," Harold O. Cummings, Cottage Hospital; "Diet Training for Internes," Dr. William J. Kerr, University of California; and "Value of Dietitians' Making Rounds," Ruth Bowden, Cottage Hospital.

The Baltimore Dietetic Association held their last meeting of the year at the College Club. This was the annual business meeting and officers were elected for the ensuring year: President, Mary E. Diefenderfer, State Normal School; Vice-President, Louise Caldwell, University of Maryland Hospital; Secretary, Ruth L. Hoover, Public School Cafeteria; Treasurer, Vera M. Stemple, Public School Cafeteria.

The latest high school cafeteria opened

was Baltimore Polytechnic Institute. Elva B. Tatman, dietitian from Clifton Park Junior High School was transferred to the Institute.

S. Maud Phillips has been added to the list of school dietitians, filling the vacancy at Southern Junior High School caused by the transfer of Georgiana Dunn to Clifton Park Junior High School.

The ten cent hot plate luncheon used at many of the cafeterias has proved very popular with the children. This has caused a noticeable increase in the sale of hot food, taking interest away from desserts and sweets. The health program carried out this past year in the public schools was considered very worthwhile. The assemblies sponsored by the various cafeterias brought forth interesting and favorable comments from both pupils and teachers. Small bulletin boards placed where they can be seen while the students are in line, with illustrative suggestions as to food selection or a general health thought, have been used by some of the dietitians. These posters are changed daily to stimulate interest and enthusiasm and to suit special occasions. An effort is being made to standardize portions in all the public school cafeterias. A committee is working on this and minor changes will go into effect next Fall. A Committee has been appointed to plan another definite health project for next year and to carry on the work already started. The staff of the Baltimore School Cafeterias are pleased that a member, Vera Stemple, is Chairman of the National School Health Committee of the American Dietetic Association. At the National Convention in Cincinnati in October, Miss Stemple will give a report on the information gathered by her committee on the care of indigent children in the schools.

Mrs. Katherine Gorsuch and Jeannette Howland of Quinby Inn state that Dr. Alice F. Blood, of Simmons College, Boston, surprised them early in May on a hurried visit to Baltimore. She was here as a Representative at the inauguration exercises for the new President of Goucher College.

The Home Economics Department of McCormick and Company recently entertained at luncheon Dr. Louise Stanley, Director of the Bureau of Home Economics of the Department of Agriculture, and Mrs. Harriet Howe, Chairman of the National Committee on Standardization of the American Home Economics Association.

Ruth W. Heath, Director of the Home Economics Department of the Schluderberg-Kurdle Co., has been busy this spring entertaining groups of University and High School students that have visited their plant. Much of her time has been spent conducting educational lectures and demonstrations. This work will end with a combination lecture and demonstration for the University of Maryland at their annual Short Course which is to be held during the week of June 18th at College Park, Md. Miss Heath expects to spend most of the summer doing research work on the preparation of meats.

Recent students who have completed their course at Johns Hopkins Hospital have accepted positions as follows: Helen Woods, Assistant Dietetian, St. Luke's Hospital, San Francisco, California; Mary Schilder, Relief dietitian, New Haven Hospital, New Haven, Conn.; Hazel Goure, Dietitian, Beth-El Hospital, Colorado Springs, Colorado; Lucile Richards, Dietitian, Maple Avenue Hospital, Dubois, Pa.; Pauline LeClaire, Assistant Dietitian, Johns Hopkins Hospital; Tephaine Burgess, Relief Dietitian, Sinai Hospital, Baltimore; Maurine Foster, Assistant Dietitian, Johns Hopkins Hospital; Esther Frank, Assistant Dietitian, Johns Hopkins Hospital.

Chicago Dietetic Association. At the May meeting, Mrs. Gilberts, chief dietitian, and her staff of Evanston Hospital, Evanston, Illinois, were hostesses to the members of the Association. In addition to a talk on "Diet in Nephritis" by Dr. James G. Carr, Department of Medicine, Evanston Hospital, there was a tour of inspection through the new nurses' home, Patten Memorial Hall. A reception was held at the close of the evening.

The June meeting opened with a talk by Mr. Smith of Janows and Kramer Kitchen Equipment Company, on "Things to Consider in Selecting Equipment." Following this the Chicago dietitians were guests of the Chicago Lighting Institute. A very elaborate

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demonstration and explanation of the usage of all varieties of lights were given. A trip through an electrically equipped modern home was also interesting.

The July meetings comprised two delightful social events—one a picnic at the sand dunes in Indiana, and at the other members were entertained at the Belden-Stratford Hotel by Mr. Arnold Shircliffe, Catering Manager of three hotels, Belden, Parkway, and Webster. Mr. Shircliffe gave an interesting lecture on the history of salads and sandwiches, and demonstrated some of his famous salads, salad dressings, and sandwiches, giving many worthwhile suggestions for the use of salads in hospital dietaries. He also told the Association of some original and experimental work which he has been doing on salads. After Mr. Shircliffe's talk, Mr. Stewart of the Stewart and Ashby Coffee Company presented an interesting film on the production of tea and coffee, after which Mr. Shircliffe invited everyone to go into the ball-room to partake of delicious refreshments.

Lida Jamison formerly at the Presbyterian Hospital accepted a position at the Chicago Dietetic Supply House on May 1st.

Alice C. Patterson, dietitian at Childrens' Memorial Hospital died on April 16, 1931.

The District of Columbia Dietetic Association held its annual dinner meeting at the Willard Hotel on February 13. Guests of the Association were the superintendents of the hospitals. Seventy-seven reservations were made. Dr. Ruth Wheeler gave an address on "Physiology and Personality" and Dr. MacEachern discussed the dietitian's place in the hospital.

At the regular business meeting of the Association held at the Garfield Hospital on April 22 the following officers were elected for the coming year: President, Lurena Perrine; Vice-President, Lucille Refshauge; Secretary, Blanche Fickle; Treasurer, Eleanor Enright.

The May meeting of the Association was held with the District of Columbia Home Economics Association. Lita Bane was the speaker for the evening, taking as her subject "High Lights." Preceding the meeting the Executive Committees of the two associations had dinner at the American Women's University Club in honor of Miss Bane.

The last meeting of the Association was held as a picnic on June 6 at Sycamore Island. The invitation to the Association was extended through the courtesy of Mary Philbrick of the George Washington University Hospital.

The Illinois Dietetic Association has recently affiliated with the national Association.

The Third Annual Meeting of the Michigan Dietetic Association was held in May at the Hotel Bancroft of Saginaw, Michigan. The opening address was delivered by Mrs. Dorothy Stewart Waller, President of the Association. Dr. Malcolm T. MacEachern spoke on "The Dietitian in the Small Hospital" and Isola Denman discussed "Food Costs," following which Mrs. Mary Harmon Riste conducted a round table on menu planning. Margaret Gillam and Dr. Martha Koehne, President and President-Elect of the American Dietetic Association, were the dinner speakers. The second day's program opened with a breakfast and business meeting, followed by a trip to the Saginaw hospitals. The Association joined the Michigan Hospital Association for luncheon. The afternoon program consisted of the following papers: "Diet in the Control of Edema," Dr. F. H. Lashmet, Department of Internal Medicine, University of Michigan; "Food and Its Relation to Peptic Ulcer and Colitis," Dr. B. C. Lockwood, Detroit; "The Nutrition Educator and the Dietitian," Dr. Marie Dye, Director, Department of Home Economics, Michigan State College.

The Minnesota Dietetic Association held its May meeting at the University of Minnesota Campus. Dr. A. V. Stoesser, of the Department of Pediatrics, spoke on "Food Allergy." Election of officers was also held at this meeting. The following will hold office during the coming year: President, Mrs. Lyl Borak, Glen Lake Sanitarium, Oak Terrace; Vice President, Ethel Gough, Minneapolis General Hospital; Recording Secretary, Virginia Bailey, Gillette State Hospital, St. Paul; Corresponding Secretary, Marion

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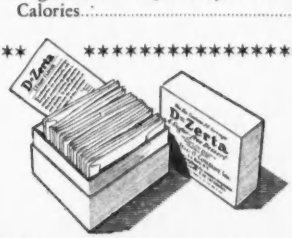

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The June meeting was held at Children's Hospital, St. Paul. Dr. Walter Ramsey gave a talk on the history of the Children's Hospital. In connection with this, he showed slides and spoke of the work at Dr. Rollier's hospital for children in Lipson, Switzerland. Dr. R. Rosenthal spoke on the "Origin of the Nursing Bottle." He also used slides for demonstration and had various examples of nursing bottles many years old. A luncheon was served with Gertrude Eckman, dietitian at the hospital, as hostess.

Eileen Hanson, formerly assistant dietitian at Fairview Hospital, Minneapolis, is now assisting Ethyl Clemens at Swedish Hospital, Minneapolis.

The Association extends its best wishes to Helen Kuntz who became Mrs. Amos Anderson on June 12.

New York. Helen Leland Brown, formerly assistant house manager at the Women's City Club of New York City, was married April 4th to Dr. William Bruce Talbot, assistant medical director of Grasslands Hospital, Valhalla, New York,

The Ohio Dietetic Association held its tenth annual meeting with the Ohio Hospital Association at Wade Park Manor, Cleveland, April 28 and 29. The program was planned by Helen Mallory and her committee. The following addresses comprised the first day's program: "Progress in the Treatment of Diabetes Mellitus," Dr. Henry John, Cleveland Clinic; "The Function of the Hospital Dietitian," Frank E. Chapman, Director of the University Hospitals of Cleveland; "The Problem of the Special Diet for a Patient with Limited Income," Frances Preston, Associated Charities of Cleveland; and "Fundamental Importance of Nutrition in Maternity and Early Infancy," Dr. Richard A. Bolt, Cleveland Child Health Association.

The Cleveland Dietetic Council served tea at the Mt. Sinai Hospital Nurses' Home, at which time Treva Marshall, a dietitian from Balore, India, gave an interesting talk on the foods used and the food problem in India.

In the evening a banquet was served at Wade Park Manor. S. Margaret Gillam, President of the American Dietetic Association, was presented with a birthday cake, a surprise to most of those present as well as to herself. Miss Gillam in her address of the evening held up high ideals to the Ohio Dietetic Association in their new affiliation with the national Association.

On the following day a breakfast round table discussion was conducted by Mary Louise Bone. A committee is trying to help standardize a method of figuring diets that will be used by all hospitals. Ethel Thompson, Associate Professor of Household Administration, Western Reserve University, talked on "Teaching Nutrition to Student Nurses." Many questions following the address showed the deep interest in the subject.

Thirteen new members were accepted during the business meeting. The following officers were elected: president, Madelyn Tobias; Vice President, Mary Louise Bone; Secretary, Elizabeth Crouse; and Treasurer, Polly Cowan.

The University Hospital entertained the visitors at luncheon in the Nurses' Dormitory, after which small groups were conducted through the new Medical Center.

Florence Meredith of Yellow Springs was married on June 25th to Louis A. Schrepple. Mr. and Mrs. Schrepple are living at 212 S. Third St., Ashland, Penna.

The Richmond Dietetic Association held the annual election of officers at the April meeting. The following were elected: President, Helen Roll; Vice President, Kathryn W. Heitshu; Secretary, Anna L. Walker; and Treasurer, Willow Belle Satterfield.

In May a dinner meeting was held at the Gypsy Tavern. During the business meeting the President announced the committees appointed for the following year. In June the program committee submitted the following program for the fall and winter meetings: October, "High Carbohydrate, Low Calorie Treatment for Diabetes;" November, "Catering to the Public;" December, "Nephrosis and Nephritis;" January, "State Sanitation;" February, "Research in Anemia

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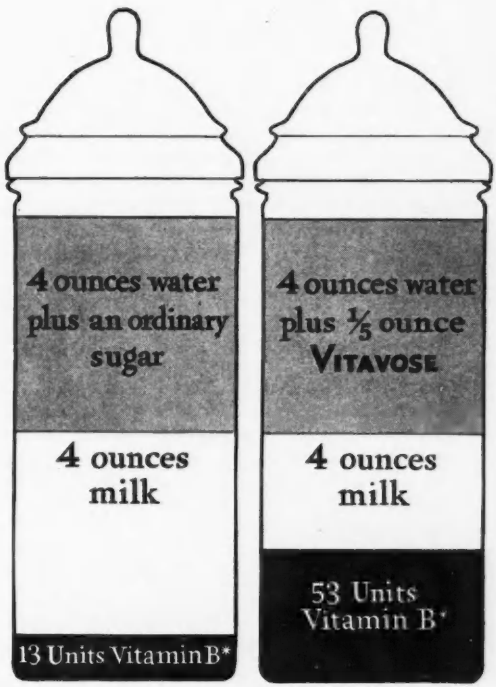
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and Mineral Metabolism;" March, "The Status of the Dietitian in the State of Virginia;" April, "What Constitutes a Well Balanced Diet for Children;" May, "The Dietetic Relation to Dental Caries;" and June, "Problem Report" by the Medical College of Virginia student dietitians.

The Scranton (Penna.) Dietetic Association has just closed its first year very successfully. The outstanding meeting of the year was a dinner given at the Nurses' Home, Moses Taylor Hospital, in honor of Lenna Cooper, of Montefiore Hospital, New York City, who gave a most interesting and helpful address on "The Work and Aims of the American Dietetic Association." The June meeting was a picnic given the Association by Mr. Russell Morgan, of Woodlawn Manor Farms, at the Woodlawn Manor Dairy Farms at Fleetville, Penna.

The officers elected for the following year are: President, Dorothy O'Brien, Mercy Hospital; Vice President, Mrs. Genevieve Clune Murray, 900 Linden Street; Secretary-Treasurer, Mary E. Huhn, Moses Taylor Hospital.

The Virginia State Dietetic Association held its semi-annual meeting in Norfolk in April. There was a short business meeting at which the most important features were the adoption of a "Resumé of Ethics" presented by a committee appointed at the preceding meeting, and the election of officers, who for the following year are: President, Helen G. Roll, Johnston-Willis Hospital, Richmond; Vice President, Aileen Brown, Memorial Hospital, Richmond; Secretary, Anna S. Cameron, 1510 Hampton Blvd., Norfolk; and Treasurer, Anna G. Hudson, Box 134, Norfolk.

The Richmond Dietetic Association was accepted for affiliation with the Virginia State Dietetic Association at that time.

A dinner meeting followed, held at the Southland Hotel. Clara Turner, Teacher of Institutional Management at Harrisonburg State Teachers' College, talked to the Association about the Institutional Section of the American Home Economics Association, asking eligible members to join that section and receive the benefits to be derived from such a membership.

Eleanora Sense of Knox Gelatine Company, Inc., Johnstown, N. Y., has recently become a life member of the American Dietetic Association.

Estelle E. Nesbitt, formerly of Presbyterian Hospital, New York City, was recently appointed director of the dietary department of Hartford Retreat, Hartford, Conn.

Cards have been received announcing the birth of a daughter, Quindara Dodge, on June 6, to Mr. and Mrs. Chester Carleton Dodge (Quindara Oliver) of Boston.

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WHO'S WHO IN THIS ISSUE

H. LOUISE CAMPBELL, Ph.D., has been engaged in research work with Professor Henry C. Sherman in the Department of Chemistry, Columbia University, since 1919.

ISOLA DENMAN received her B.S. from the Oklahoma Agricultural and Mechanical College. She is at present Administrative Dietitian at the University of Michigan Hospital.

MARTHA KOEHNE, Ph.D., is President-elect of the American Dietetic Association. She is Research Associate in Nutrition, University of Michigan, in charge of nutrition problems in connection with the study of the cause of dental caries being conducted there under the general direction of Dr. R. W. Bunting. The work is financed by the Children's Fund of Michigan, through the University. Dr. Koehne taught nutrition at the University of Chicago throughout the summer quarter.

DWIGHT L. SISCOE received his A.B. from Colorado College and his M.D. and Doctor P.H. from Harvard Medical School. He is Assistant Medical Professor of Harvard Medical School; Associate Physician, Massachusetts General Hospital; Consulting Physician, Massachusetts Eye and Ear Infirmary; and on the Courtesy Staff of the Faulkner Hospital, Deaconess Hospital and the New England Baptist Hospital in Boston. His primary interest is in diabetes and he has worked for three years with Dr. Joslin. He was Field Officer for the Rockefeller Foundation and served in the West Indies.

ETHEL M. THOMPSON received her A.B. from the University of Washington at Seattle, and her M.S. from Teachers College, Columbia University, New York City. She has been assistant dietitian and chief dietitian at the City and County Hospital of San Francisco. At present she is assistant professor in the Household Administration Department of Western Reserve University, Cleveland.

MRS. BESSIE BROOKS WEST received her M.A. from the Department of Household Science, University of California. She is a former member of the State Council California Home Economics Association and is at present secretary of the Institution Economics Department of the American Home Economics Association. Mrs. West is head of the Department of Institutional Economics at Kansas State College. This department has under its supervision the dormitory, college cafeteria and tea room, the high school cafeteria, the supervision of the menu planning and food purchasing for some of the organized groups on the campus, and teaching graduate and undergraduate subjects in institutional economics.

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ELEANOR WELLS is a graduate of Framingham Normal School, receiving her B.S. and M.A. degrees later from Teachers College, Columbia University. She served as dietitian at Johns Hopkins and the Brooklyn (New York) hospitals, and as Social Service Dietitian at the Postgraduate Hospital, New York City. Miss Wells has written extensively, including an article on American poetry which appeared in an English publication. She has blazed many a pioneer trail in her profession of dietetics other than the one discussed in her current article. Miss Wells represented New Zealand at the Geneva Conference of the International Federation of University Women two years ago. She is at present with the Young Women's Christian Association of Providence, R. I.

MARY M. HARRINGTON, Director of Dietetics at Harper Hospital, Detroit, was formerly Metabolism and Research Dietitian at the University of Michigan. Her recent publications include "A Simplified Method of Controlling Diabetes Mellitus," written with A. C. Curtis and published in the *Journal of the Michigan State Medical Society* in May, 1930; and "Appetite in Relation to Weight," published in the JOURNAL OF THE AMERICAN DIETETIC ASSOCIATION, September, 1930.

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